

Baja profil H hasil pengelasan dengan filter untuk konstruksi umum



BAJA PROFIL—H HASIL PENGELASAN DENGAN FILER UNTUK KONSTRUKSI UMUM

1. RUANG LINGKUP

Standar ini meliputi definisi, cara pembuatan, syarat mutu, cara pengambilan contoh uji, cara uji, syarat lulus uji, dan syarat penandaan pada baja profil—H hasil pengelasan untuk konstruksi umum.

2. DEFINISI

Baja profil—H yang dimaksud pada standar ini adalah profil yang terbuat dari plat baja yang mengalami proses pemotongan, dan penggabungannya dilakukan dengan pengelasan secara menerus. Bagian yang kedua sisinya dilas dinamakan badan profil (web) dan bagian lain dinamakan pelat sayap (flens).

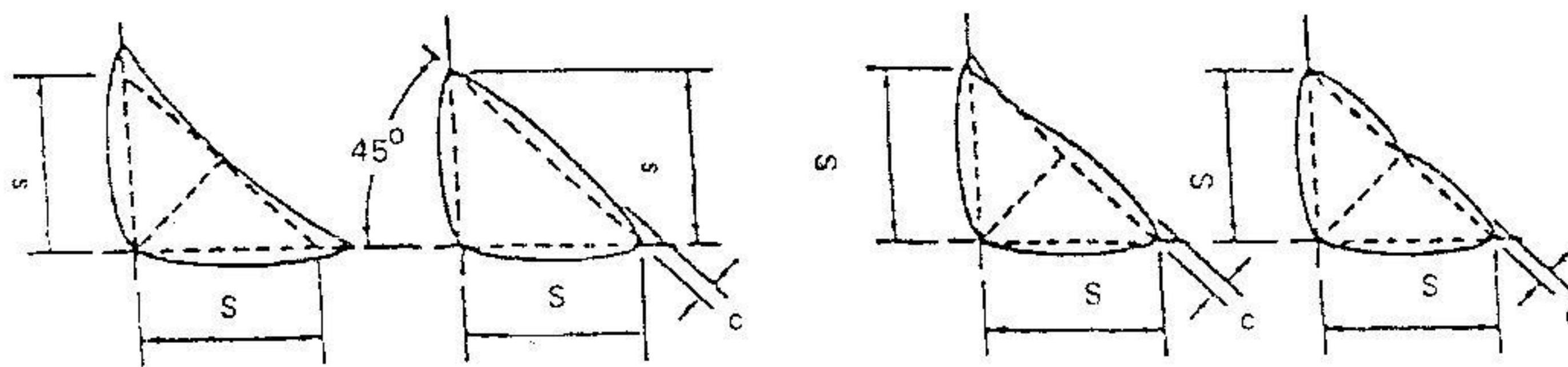
3. CARA PEMBUATAN

- 3.1. Pengelasan harus dilakukan secara menerus dan tidak terputus-putus sedemikian rupa, sehingga tidak membahayakan sifat mekanis dan tidak menimbulkan banyak perubahan bentuk.
- 3.2. Pengelasan harus dilakukan sesuai dengan spesifikasi prosedur las (WPS) dan catatan kualifikasi prosedur (POR) untuk satu kali pengelasan *single-pass* maupun *multiple-pass*, dengan proses pengelasan yang sama, yang telah disahkan oleh badan yang berwenang.

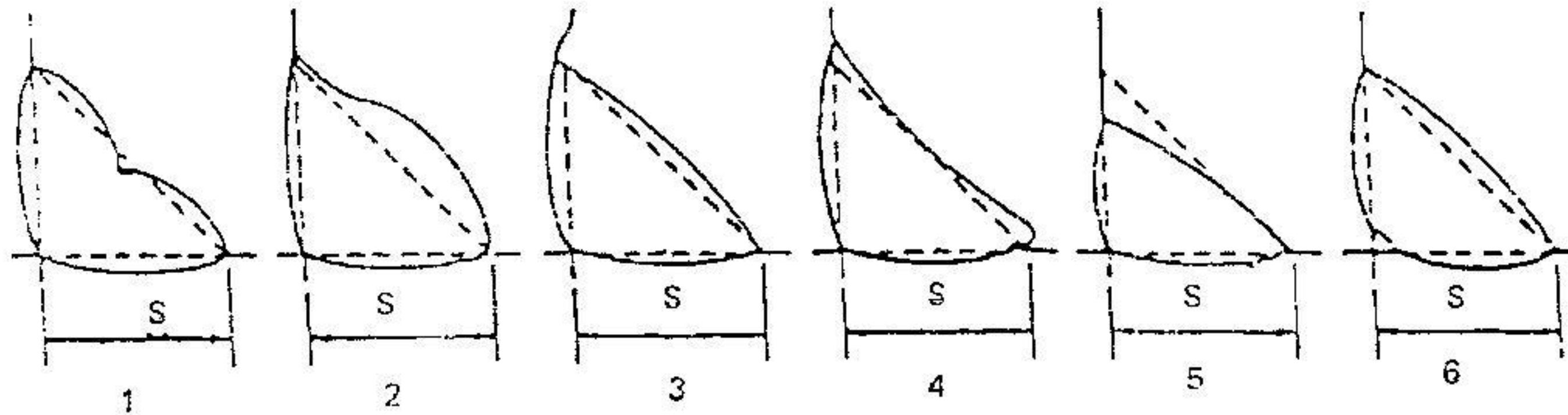
4. SYARAT MUTU

4.1. Sifat Tampak

- 4.1.1. Batang profil harus tampak rata dan lurus, bebas dari cacat-cacat lainnya yang merugikan penggunaan.
- 4.1.2. Kedalaman takikan las tidak boleh lebih besar dari 0,25 mm.
- 4.1.3. — Bentuk penampang las fillet boleh cembung ramping, rata atau cekung ramping, seperti pada Gambar 1.
 - Kecembungan las (C) tidak boleh melebihi 0,07 kali lebar permukaan las nyata ditambah 1,5 mm
 - Kecekungan las tidak boleh melebihi ukuran tenggorokan (throat) yang ditentukan (lihat Gambar 1).



a) Profil las fillet yang diterima



b) Profil las fillet yang tidak diterima

Keterangan : S = Ukuran las
 C = Kecembungan las
 1 = Kurang
 2 = Cembung berlebihan
 3 = Takik terlalu dalam
 4 = Melebar
 5 = Kaki kurang
 6 = Pembakaran kurang

Gambar 1
 Bentuk Penampang Las

4.2. Bahan Induk

Bahan induk yang digunakan adalah BjCp. 41 kelas 2, sesuai dengan SII. 0876—83, *Baja Canai Panas untuk Konstruksi Umum*.

4.3. Las

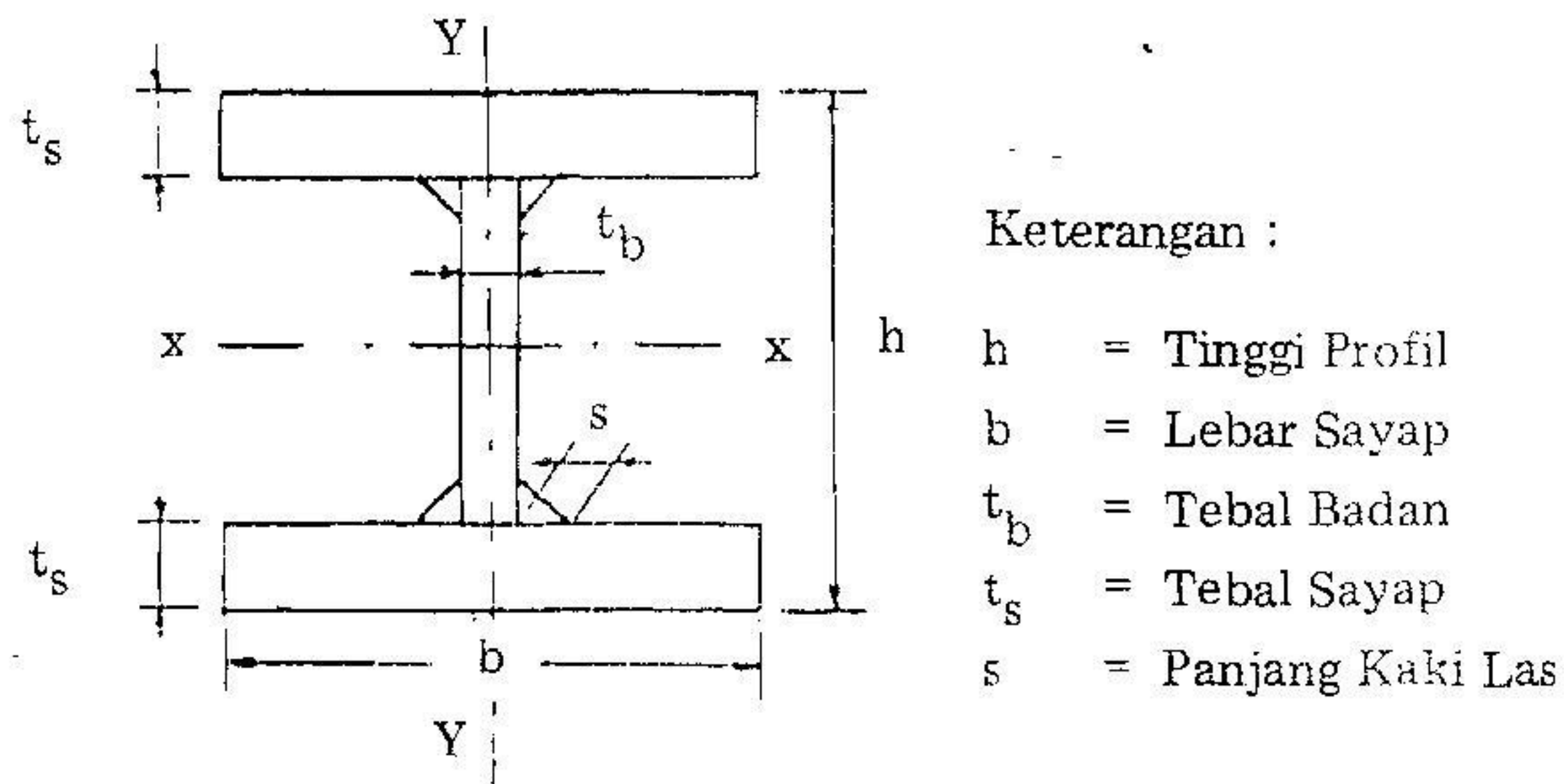
4.3.1. Kekuatan sambungan las harus lebih besar atau sama dengan kekuatan bahan induk.

Bila putus pada las, maka nilai kuat tarik yang diperoleh dari hasil perhitungan beban tarik dibagi luas penampang badan (Web), tidak boleh kurang dari 402 N/mm^2 (41 kgf/mm^2).

4.3.2. Kemulusan sambungan las sesuai dengan ketentuan yang berlaku

4.4. Bentuk dan Ukuran

Bentuk dan ukuran penampang melintang, luas penampang, berat per meter dan besaran penampang terhadap sumbu lentur adalah seperti tampak pada Gambar 2, dan sebagai contoh lihat pada lampiran.



Gambar 2
Bentuk Profil-H

4.5. Toleransi

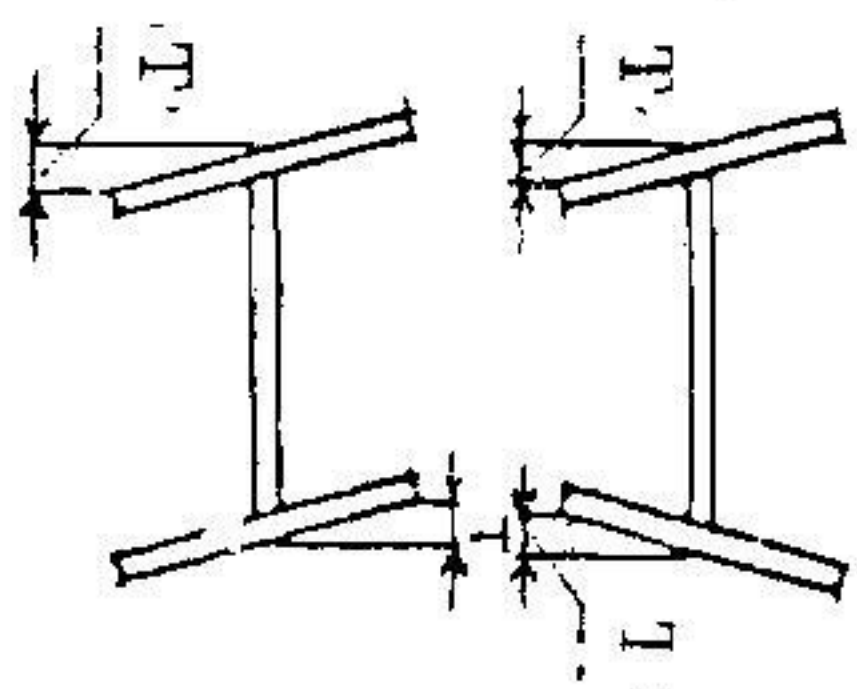
4.5.1. Toleransi Tinggi dan Lebar

Toleransi tinggi dan lebar sayap adalah seperti berikut :

Ukuran Nominal		Toleransi	
Tinggi Profil, h	Lebar Sayap, b	h	b
$h < 400 \text{ mm}$	Semua Ukuran	$\pm 3,0 \text{ mm}$	$\pm 3,0 \text{ mm}$
$400 \leq h < 600 \text{ mm}$		$\pm 4,0 \text{ mm}$	$\pm 3,0 \text{ mm}$
$h \geq 600 \text{ mm}$		$\pm 5,0 \text{ mm}$	$\pm 3,0 \text{ mm}$

4.5.2. Toleransi Kesikuan

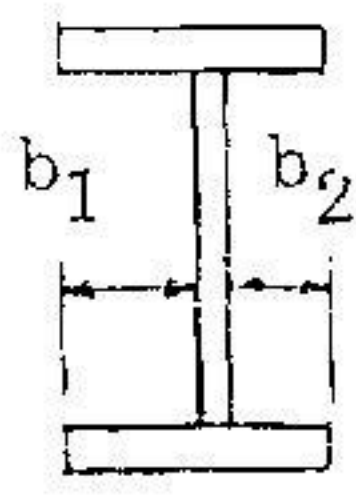
Toleransi kesikuan adalah sebagai berikut :



Tinggi Nominal	Toleransi
$h \leq 300 \text{ mm}$	$T \leq 1,2\% \times b$, dimana nilai toleransi minimum tidak boleh melampaui 2,0 mm.
$h > 300 \text{ mm}$	$T \leq 1,5\% \times b$, dimana nilai toleransi minimum tidak boleh melampaui 2,00 mm.

4.5.3. Toleransi Eksenteris

Toleransi eksenteris adalah sebagai berikut :

$S = \frac{b_1 - b_2}{2}$ 	Tinggi nominal, h	Toleransi, S
	$h \leq 300 \text{ mm}$ $h > 300 \text{ mm}$	$\pm 3,0 \text{ mm}$ $\pm 4,5 \text{ mm}$

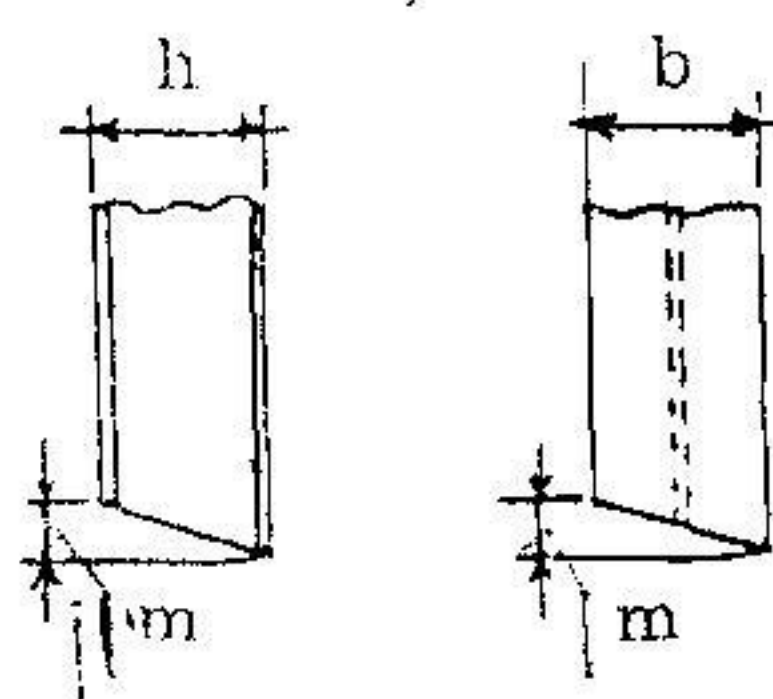
4.5.4. Toleransi Panjang

Toleransi panjang adalah sebagai berikut :

Panjang Nominal	Toleransi
$L \leq 7 \text{ m}$ $L > 7 \text{ m}$	0 sampai dengan + 40 mm Setiap pertambahan panjang 1 m ditambah 5 mm

Pengukuran panjang dilakukan pada sumbu memanjang badan profil

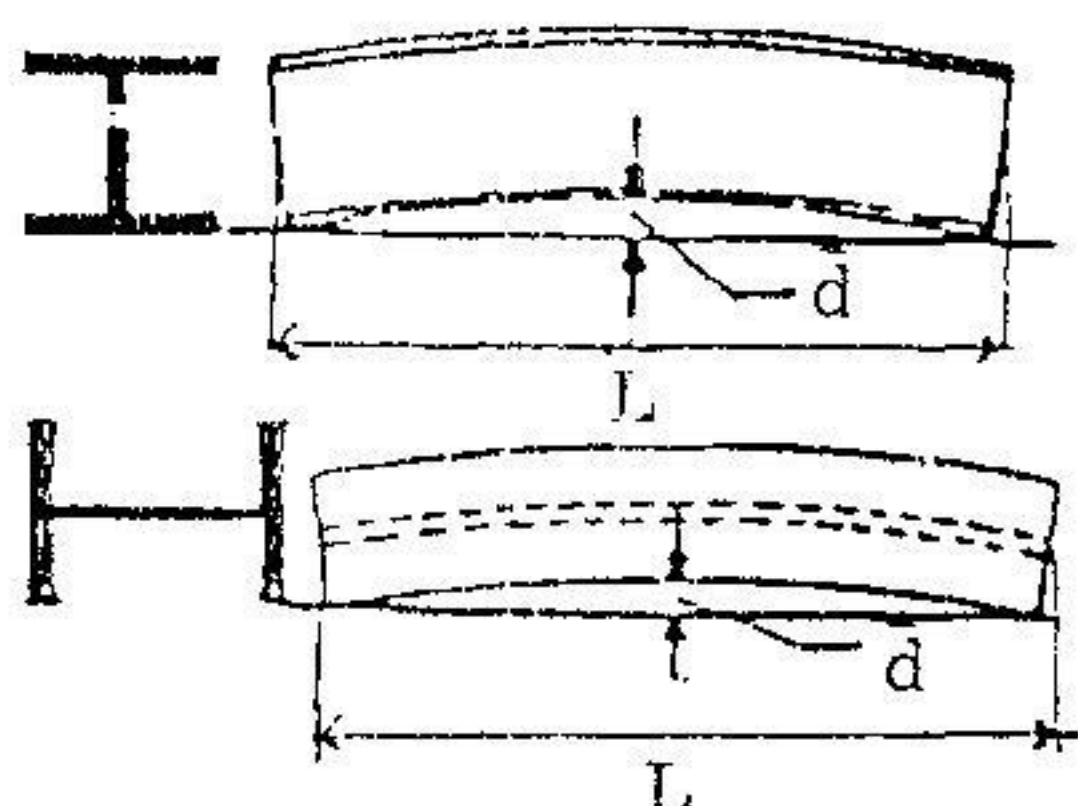
4.5.5. Toleransi Kelurusan Pemotongan



Ukuran	Toleransi, E
h	$E < 1,6\% \times h$, dimana nilai toleransi minimum tidak boleh melampaui 3,0 mm
b	$E < 1,6\% \times b$, dimana nilai toleransi minimum tidak boleh melampaui 3,0 mm.

4.5.6. Toleransi Kelengkungan

Toleransi kelengkungan adalah sebagai berikut :



Tinggi Nominal, h	Toleransi, a/L
$h \leq 300 \text{ mm}$	a maks. = 0,20 % L
$h > 300 \text{ mm}$	a maks. = 0,10 % L

5. CARA PENGAMBILAN CONTOH

- 5.1. Pengambilan contoh uji hanya dilakukan oleh petugas yang berwenang.
- 5.2. Profil yang akan diuji harus dikelompokkan sedemikian rupa sehingga mudah diidentifikasi. Setiap kelompok harus terdiri dari satu macam ukuran yang dihasilkan pada kondisi yang sama.
- 5.3. Ketentuan pengambilan contoh uji adalah sebagai berikut :

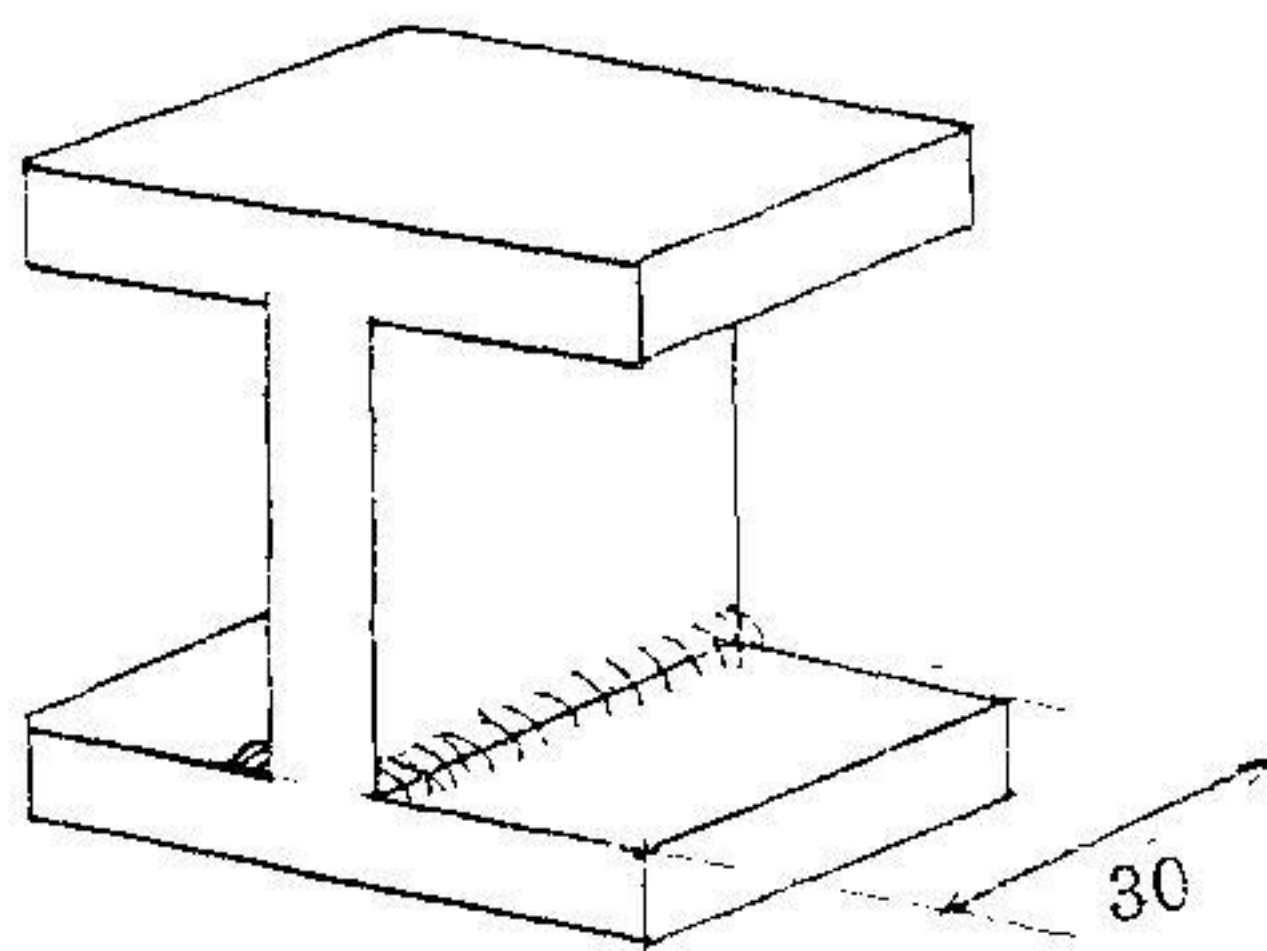
Ukuran tinggi Profil	Jumlah profil	Contoh uji yang diambil	Tempat pengambilan
$h \leq 450 \text{ mm}$	≤ 200 batang	1 contoh uji, *) panjang 800 mm	Dari salah satu ujung profil
$h > 450 \text{ mm}$	≤ 100 batang	1 contoh uji, **) panjang 800 mm	Dari salah satu ujung profil

*) Untuk setiap kelipatan 200 batang, diambil 1 contoh uji

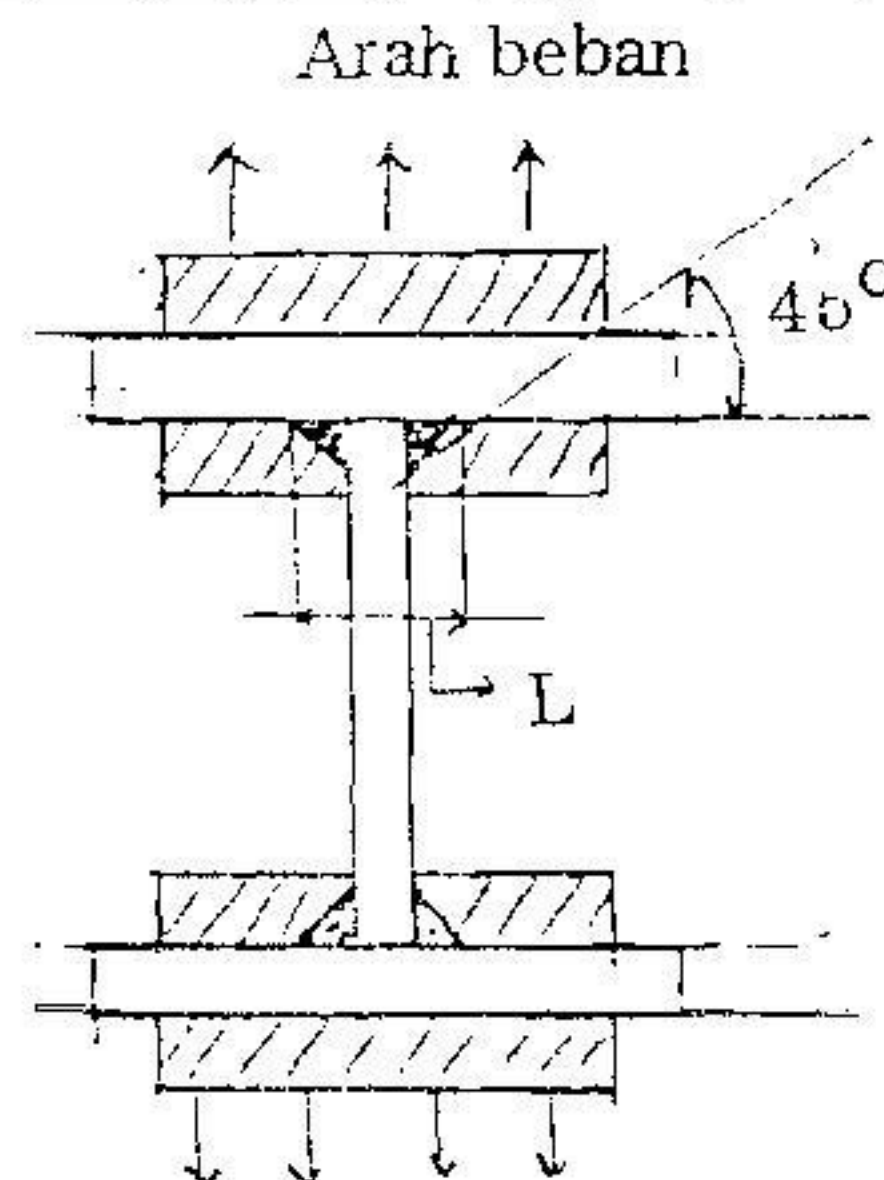
**) Untuk setiap kelipatan 100 batang, diambil 1 contoh uji

6. CARA UJI

- 6.1. Pemeriksaan pada sifat tampak dilakukan secara visual.
- 6.2. Pengujian bahan induk sesuai dengan SII. 0876—83, butir 5.
- 6.3. Pengujian tarik kekuatan las dengan membuat batang uji minimal sepanjang 30 mm sesuai Gambar 3.
- Cara uji tarik las menggunakan alat bantu seperti Gambar 4. Sudut kemiringan alat bantu terhadap sayap minimum 45° , L minimum 1,5 kali tebal sayap dan kecembungan las tidak boleh menyinggung alat bantu.
- 6.4. Pengujian mutu las fillet dilakukan dengan makroskopis.



Gambar 3
Batang Uji



Gambar 4
Arah beban
Cara Uji Tarik

7. SYARAT LULUS UJI

- 7.1. Kelompok dinyatakan lulus uji bila memenuhi seluruh ketentuan pada butir 4 dan 6.
- 7.2. Apabila salah satu ketentuan pada butir 4 dan 6 tidak dipenuhi maka dapat dilakukan uji ulang dengan jumlah contoh uji dua kali jumlah contoh uji pertama, dari kelompok yang sama.
- 7.3. Apabila hasil uji ulang tersebut memenuhi seluruh ketentuan pada butir 4 dan 6, maka kelompok dinyatakan lulus uji, dan apabila tidak memenuhi seluruh ketentuan pada butir 4 dan 6, maka kelompok dinyatakan tidak lulus uji.

8. SYARAT PENANDAAN

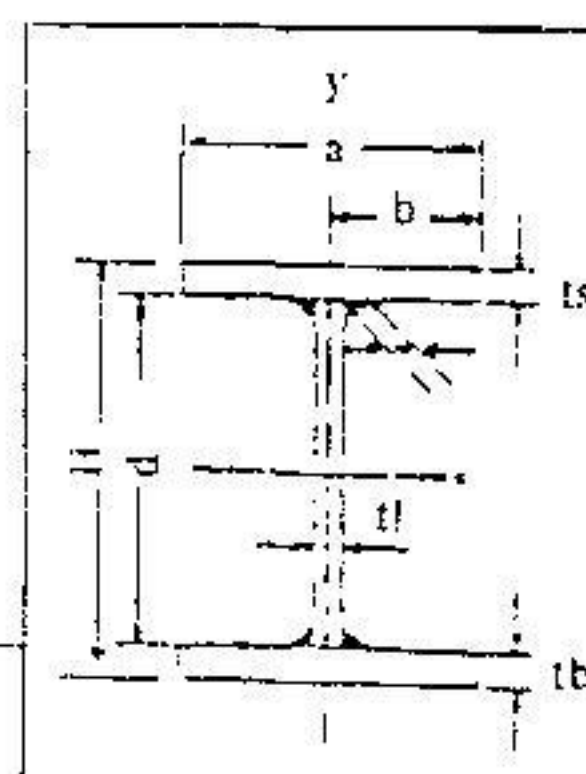
Semua Profil-H yang telah lulus uji harus diberi tanda dengan mencantumkan :

- Nama Pabrik
- Kode Produksi
- Ukuran ($h \times b \times t_b \times t_s$), dalam mm

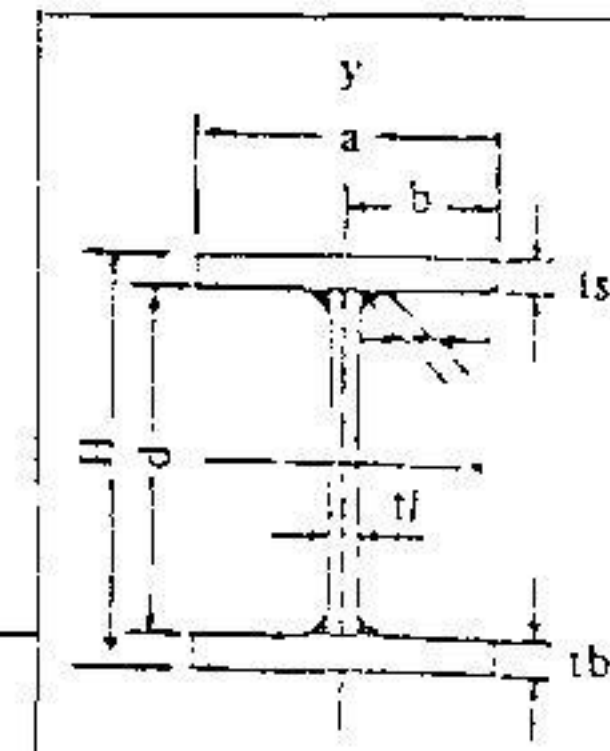
Penandaan harus diletakkan pada tempat yang mudah terlihat dan tidak mudah rusak/hilang.

LAMPIRAN :

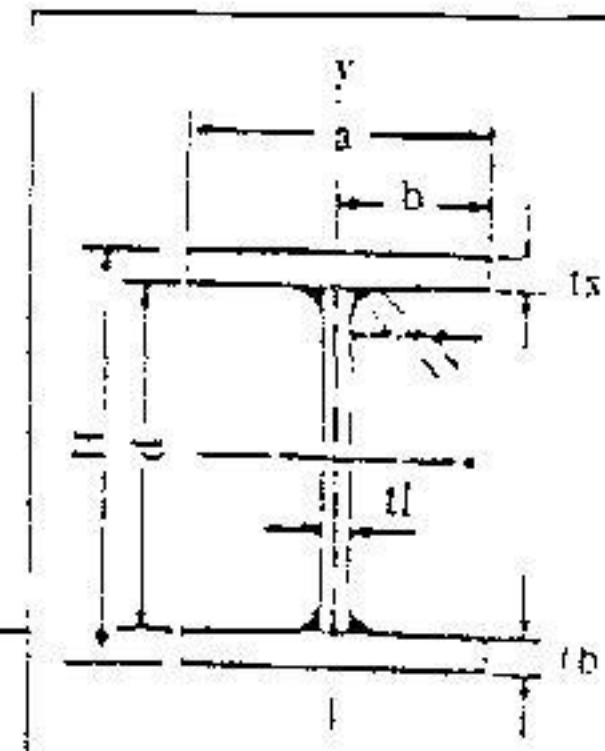
Contoh Ukuran Penampang Melintang, Luas Penampang,
Berat per meter, Besaran Penampang terhadap Sumbu Lentur



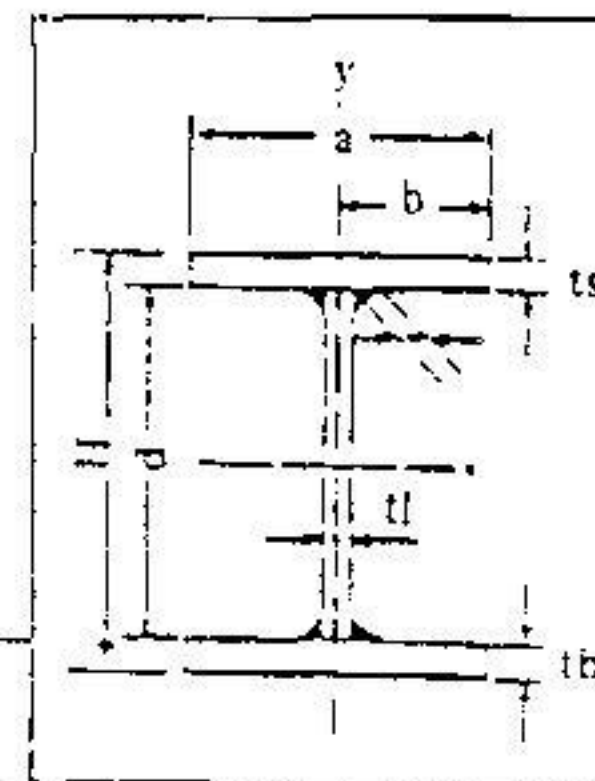
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Geras		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
200 X 100	5.5	8.0	5.0	26.62	20.9	1.761	134	8.1	2.24	176	26.7
	6.0	9.0	5.0	29.42	23.1	1.944	150	8.1	2.25	194	30.1
	7.0	11.0	5.0	34.96	27.4	2.296	184	8.1	2.29	230	36.8
	8.0	12.0	5.6	38.71	30.4	2.487	201	8.0	2.28	249	40.2
200 X 125	5.5	8.0	5.0	30.52	24.0	2.130	261	8.3	2.92	213	41.7
	6.0	9.0	5.0	33.92	26.6	2.355	293	8.3	2.94	236	46.9
	7.0	11.0	5.0	40.46	31.8	2.788	359	8.2	2.93	279	57.4
	8.0	12.0	5.6	44.71	35.1	3.018	391	8.2	2.96	302	62.8
200 X 150	5.5	8.0	5.0	34.62	27.2	2.499	450	8.6	3.61	250	60.0
	6.0	9.0	5.0	38.42	30.2	2.758	507	8.5	3.63	277	67.5
	7.0	11.0	5.0	45.96	36.1	3.279	619	8.4	3.67	328	82.6
	8.0	12.0	5.6	50.71	39.8	3.549	676	8.4	3.65	355	90.1
200 X 175	5.5	8.0	5.0	38.62	30.3	2.867	715	8.6	4.00	287	81.7
	6.0	9.0	5.0	42.92	33.7	3.176	804	8.6	4.03	318	91.9
	7.0	11.0	5.0	51.46	40.4	3.771	983	8.6	4.07	377	112.3
	8.0	12.0	5.6	56.71	44.5	4.050	1.073	8.5	4.05	408	122.6
200 X 200	5.5	8.0	5.0	42.62	33.5	3.236	1.067	8.7	5.00	324	106.7
	6.0	9.0	5.0	47.42	37.2	3.587	1.200	8.7	5.03	359	120.0
	7.0	11.0	5.0	55.96	44.7	4.263	1.467	8.7	5.08	426	146.7
	8.0	12.0	5.6	62.71	49.2	4.610	1.601	8.6	5.05	461	160.1
250 X 100	5.5	8.0	5.0	29.37	23.1	2.931	134	10.0	2.13	224	26.7
	6.0	9.0	5.0	32.42	25.4	3.229	150	10.0	2.15	259	30.1
	7.0	11.0	5.0	38.46	30.2	3.835	184	10.0	2.19	307	36.8
	8.0	12.0	5.6	42.71	33.5	4.171	201	9.9	2.17	334	40.2
250 X 125	5.5	8.0	5.0	33.37	26.2	3.517	261	10.3	2.80	281	41.7
	6.0	9.0	5.0	36.92	29.0	3.893	293	10.3	2.82	311	46.9
	7.0	11.0	5.0	43.96	34.5	4.621	359	10.3	2.85	370	57.4
	8.0	12.0	5.6	48.71	38.2	5.021	392	10.2	2.84	402	62.7
250 X 150	5.5	8.0	5.0	37.37	29.3	4.102	450	10.5	3.47	328	60.0
	6.0	9.0	5.0	41.42	32.5	4.547	507	10.5	3.50	364	67.5



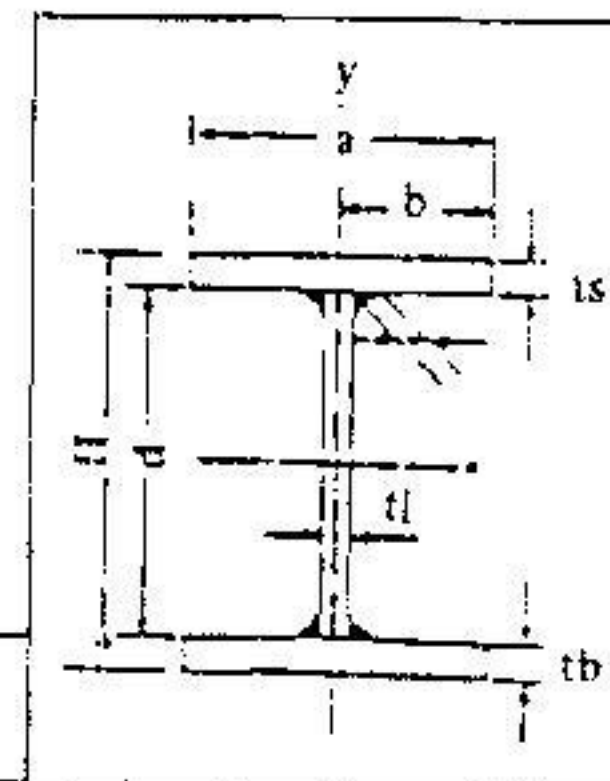
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
250 X 150	7.0	11.0	5.0	49.46	38.8	5.407	619	10.5	3.54	433	52.6
	8.0	12.0	5.6	54.71	42.9	5.872	676	10.4	3.52	470	90.1
250 X 175	5.5	8.0	5.0	41.37	32.5	4.688	715	10.6	4.16	375	81.7
	6.0	9.0	5.0	45.92	36.0	5.200	804	10.6	4.19	416	91.9
	7.0	11.0	5.0	54.96	43.1	6.193	983	10.6	4.23	495	112.4
	8.0	12.0	5.6	60.71	47.7	6.722	1,073	10.5	4.20	538	122.5
250 X 200	5.5	8.0	5.0	45.37	35.6	5.274	1,067	10.8	4.85	422	108.7
	6.0	9.0	5.0	50.42	39.6	5.854	1,200	10.8	4.88	468	120.0
	7.0	11.0	5.0	60.46	47.5	6.979	1,467	10.7	4.93	553	146.7
	8.0	12.0	5.6	66.71	52.4	7.573	1,601	10.7	4.90	606	160.1
250 X 250	5.5	8.0	5.0	53.37	41.9	6.446	2,084	11.0	6.25	515	166.7
	6.0	9.0	5.0	59.42	46.6	7.162	2,344	11.0	6.28	573	167.5
	7.0	11.0	5.0	71.46	56.1	8.551	2,865	10.9	6.33	684	229.2
	8.0	12.0	5.6	78.71	61.8	9.273	3,126	10.9	6.30	742	250.1
300 X 150	6	9	5.0	44.42	34.9	6.838	508	12.4	3.39	455	67.4
	6	12	5.0	53.06	41.7	9.520	675	12.7	3.58	568	90.0
	9	12	6.3	61.63	48.4	9.046	676	12.1	3.33	603	90.1
	9	16	6.3	72.91	57.2	11,132	901	12.4	3.53	742	120
300 X 175	6	9	5.0	48.92	38.4	7.791	804	12.6	4.07	519	91.9
	6	12	5.0	59.06	46.4	9.765	1,072	12.8	4.27	651	122
	9	12	6.3	67.63	53.1	10,290	1,073	12.3	4.00	686	122
	9	16	6.3	80.91	63.5	12,347	1,430	12.5	4.22	849	163
300 X 200	6	9	5.0	53.42	41.9	8,744	1,200	12.8	4.76	582	120
	6	12	5.0	65.06	51.1	11,010	1,600	13.0	4.97	734	160
	9	12	6.3	73.63	57.8	11,535	1,601	12.5	4.68	769	160
	9	16	6.3	88.91	69.8	14,362	2,134	12.7	4.92	957	213
300 X 225	6	9	5.0	57.92	45.5	9,697	1,709	12.9	5.45	646	151
	6	12	5.0	71.06	55.8	12,255	2,278	13.1	5.69	817	202



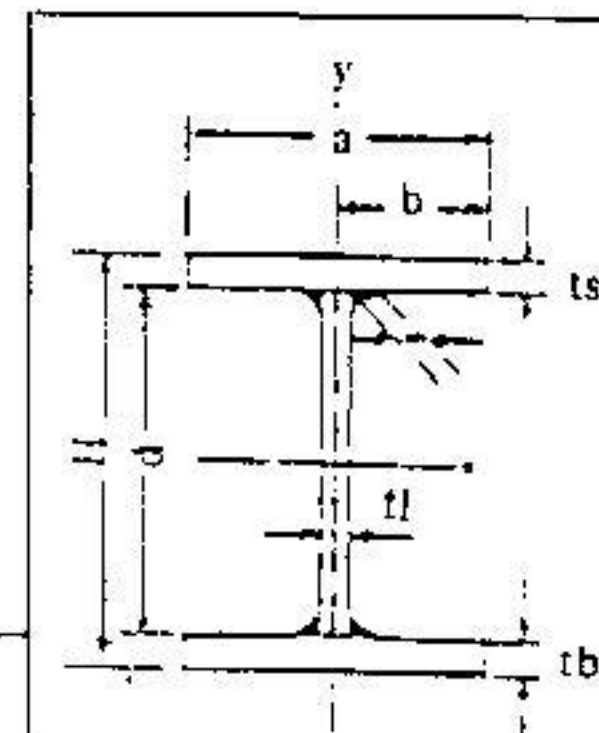
Ukuran Profil - H mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
300 X 225	9	12	6.3	79.63	62.5	12.780	2.279	12.7	5.37	862	302
	9	16	6.3	96.91	76.1	15.977	3.039	12.8	5.62	1.065	270
300 X 250	6	9	5.0	62.42	49.0	10.650	2.344	13.1	6.15	710	197
	6	12	5.0	77.06	60.5	13.500	3.125	13.2	6.38	900	250
	9	12	5.3	85.63	67.2	14.025	3.125	12.8	6.06	935	250
	9	14	6.2	95.27	74.8	15.834	3.647	12.9	6.21	1.055	281
	9	16	6.3	104.91	82.4	17.591	4.168	12.9	6.22	1.172	332
300 X 275	6	9	5.0	66.92	52.5	11.603	3.120	13.2	6.65	773	225
	6	12	5.0	83.06	65.2	14.744	4.152	13.3	7.09	982	302
	9	12	6.2	91.63	71.9	15.270	4.163	12.9	6.76	1.018	302
	9	14	6.3	102.27	80.3	17.267	4.854	13.0	6.91	1.151	353
	9	16	6.3	112.91	88.6	19.206	5.547	13.0	7.02	1.280	403
300 X 300	6	9	5.0	71.42	56.1	12.556	4.050	13.2	7.55	837	270
	6	12	5.0	89.06	69.9	15.969	5.400	13.4	7.80	1.065	360
	6	14	5.0	100.82	79.1	18.196	6.200	13.4	7.92	1.213	420
	9	12	6.3	97.63	76.6	16.515	5.401	13.0	7.40	1.101	360
	9	14	6.3	109.27	85.8	18.700	6.201	13.1	7.62	1.246	420
	9	16	6.3	120.91	94.9	20.821	7.201	13.1	7.74	1.388	480
	12	16	8.4	129.57	102	21.302	7.203	12.8	7.49	1.420	460
	12	19	8.4	146.85	115	24.326	8.553	12.9	7.66	1.622	570
350 X 150	6	9	5.0	47.42	37.2	9.660	505	14.2	3.28	553	67.4
	6	12	5.0	56.06	44.0	12.018	675	14.6	3.48	686	90.0
	9	12	6.3	66.13	51.9	12.884	676	14.0	3.21	736	90.1
	9	16	6.3	77.41	60.8	15.808	901	14.3	3.42	903	120
350 X 175	6	9	5.0	51.92	40.8	10.553	604	14.5	3.95	627	91.8
	6	12	5.0	62.06	48.7	13.732	1.072	14.9	4.17	784	122
	9	12	6.3	72.13	56.6	14.599	1.073	14.2	3.97	834	122
	9	16	6.3	85.41	67.0	18.041	1.431	14.5	4.11	1.030	163
350 X 200	6	9	5.0	56.42	44.3	12.297	1.200	14.8	4.63	702	120
	6	12	5.0	68.06	53.4	15.447	1.600	15.1	4.86	882	160
	9	12	6.3	78.13	61.3	16.313	1.601	14.5	4.5	922	160
	9	16	6.3	93.41	73.3	20.274	2.135	14.7	4.80	1.158	212



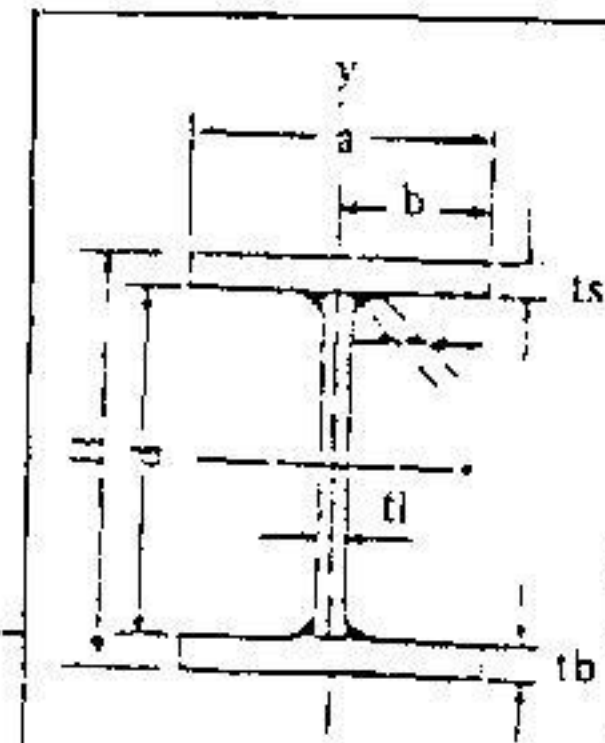
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Geser		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
350 X 225	6	9	5.0	60.92	47.8	13.805	1.709	15.0	5.31	777	151
	6	12	5.0	74.06	58.1	17.161	2.278	15.2	6.56	980	202
	9	12	6.3	84.13	66.0	18.027	2.280	14.6	6.22	1.030	200
	9	16	6.3	101.41	79.6	22.507	3.009	14.9	6.49	1.286	270
350 X 250	6	9	5.0	65.42	51.4	14.914	2.044	15.1	6.00	852	187
	6	12	5.0	80.06	62.8	18.875	2.125	15.2	6.26	1.078	250
	9	12	6.3	90.13	70.8	19.742	2.126	14.8	5.91	1.128	250
	9	14	6.3	99.77	78.2	22.272	3.647	15.0	6.06	1.272	291
	9	16	6.3	109.41	85.9	24.740	4.109	15.0	6.18	1.413	333
350 X 275	6	9	5.0	69.92	54.9	16.222	2.120	15.2	5.70	925	226
	6	12	5.0	86.06	67.6	20.590	4.158	15.4	6.01	1.175	302
	9	12	6.3	95.13	75.5	21.456	4.161	15.0	6.60	1.225	302
	9	14	6.3	106.77	83.8	24.248	4.854	15.1	6.76	1.385	350
	9	16	6.3	117.41	92.2	26.972	5.547	15.2	6.89	1.541	402
350 X 300	6	9	5.0	74.42	58.4	17.531	4.060	15.3	7.40	1.001	270
	6	12	5.0	92.06	72.3	22.304	5.400	15.5	7.57	1.274	360
	6	14	5.0	103.82	81.5	25.291	6.000	15.6	7.80	1.450	420
	9	12	6.3	102.13	80.2	23.170	5.401	15.1	7.30	1.324	360
	9	14	6.3	113.77	89.2	26.225	6.301	15.2	7.46	1.498	420
	9	16	6.3	125.41	98.4	29.205	7.201	15.2	7.60	1.668	480
	12	16	8.4	135.57	106	30.009	7.204	14.9	7.30	1.714	430
	12	19	8.4	152.85	120	34.295	8.354	15.0	7.51	1.958	570
350 X 325	6	9	5.0	78.92	62.0	18.832	5.149	15.4	8.10	1.076	316
	6	12	5.0	98.06	77.0	24.019	6.666	15.6	8.38	1.372	422
	6	14	5.0	110.82	87.0	27.567	8.010	15.7	8.52	1.563	492
	9	12	6.3	108.13	84.9	24.885	6.867	15.2	7.99	1.422	422
	9	14	6.3	120.77	94.8	28.202	8.011	15.3	8.17	1.611	492
	9	16	6.3	133.41	105	31.438	9.156	15.3	8.30	1.796	563
	12	16	8.4	143.57	113	32.242	9.158	15.0	8.02	1.842	563
	12	19	8.4	162.35	127	36.900	10.874	15.1	8.21	2.108	669
350 X 350	6	9	5.0	83.42	65.5	20.147	6.431	15.5	8.80	1.151	367
	6	12	5.0	104.00	81.7	25.723	8.575	15.7	9.09	1.470	420



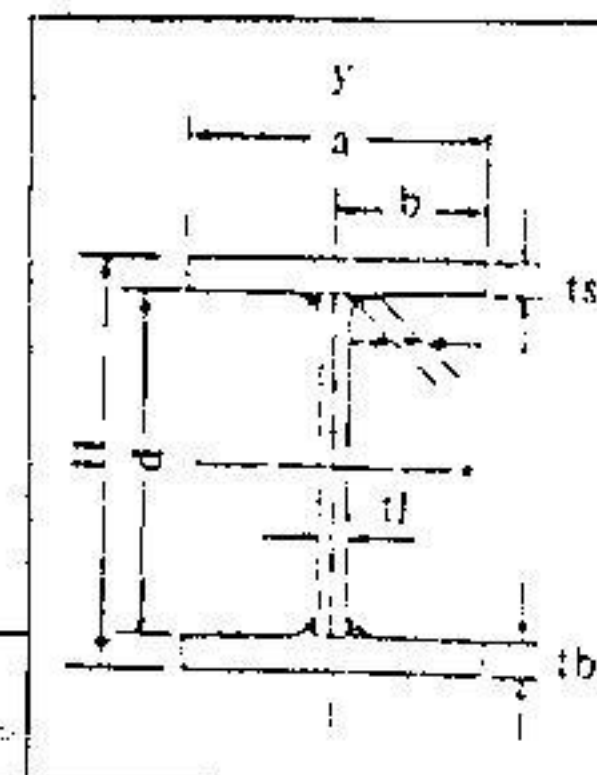
Ukuran Profil - H. mm				luas penam- pong (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			ix	iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
350 X 350	6	14	5.0	117.82	92.5	29,344	10,004	15.7	9.22	1.676	571
	9	12	6.3	114.12	89.6	26,539	8,576	15.3	8.69	1.519	490
	9	14	6.3	127.77	100	30,179	10,006	15.4	8.87	1.724	571
	9	16	6.3	141.41	111	33,671	11,435	15.4	9.01	1.924	653
	12	16	8.4	151.57	119	34,475	11,437	15.1	8.72	1.970	653
	12	19	8.4	171.85	135	39,505	13,581	15.2	8.92	2.257	776
400 X 200	6	9	5.0	59.42	46.6	16,548	1,200	16.7	4.51	827	120
	6	12	5.0	71.06	55.8	20,728	1,600	17.1	4.76	1.036	160
	9	12	6.3	82.63	64.9	22,057	1,602	16.4	4.42	1.102	160
	9	14	6.3	90.27	70.9	24,729	1,868	16.6	4.56	1.236	186
	9	16	6.3	97.91	76.9	27,344	2,135	16.7	4.68	1.367	213
	12	16	8.4	109.57	86.0	28,590	2,139	16.2	4.44	1.429	213
400 X 225	6	9	5.0	63.92	50.2	18,268	1,209	16.9	5.18	913	151
	6	12	5.0	77.06	60.5	22,987	2,278	17.3	5.45	1.149	202
	9	12	6.3	88.63	69.6	24,316	2,280	16.6	5.09	1.215	202
	9	14	6.3	97.27	76.4	27,337	2,660	16.8	5.25	1.366	236
	9	16	6.3	105.91	83.1	30,295	3,039	16.9	5.37	1.514	270
	12	16	8.4	117.57	92.3	31,541	3,042	16.4	5.11	1.577	270
400 X 250	6	9	5.0	68.42	53.7	19,989	2,344	17.1	5.87	999	187
	6	12	5.0	83.06	65.2	25,246	3,125	17.4	6.15	1.262	250
	9	12	6.3	94.63	74.3	26,575	3,127	16.8	5.77	1.328	250
	9	14	6.3	104.27	81.9	29,946	3,648	17.0	5.93	1.497	291
	9	16	6.3	113.91	89.4	33,245	4,168	17.1	6.06	1.652	333
	12	16	8.4	125.57	98.6	34,491	4,171	16.6	5.79	1.724	333
400 X 275	6	9	5.0	72.92	57.2	21,709	3,120	17.3	6.56	1.085	226
	6	12	5.0	89.06	69.9	27,505	4,153	17.6	6.85	1.375	302
	9	12	6.3	100.63	79.0	28,834	4,161	16.9	6.45	1.441	302
	9	14	6.3	111.27	87.3	32,555	4,654	17.1	6.62	1.627	353
	9	16	6.3	121.91	95.7	36,196	5,248	17.2	6.76	1.809	403
	12	16	8.4	133.57	105	37,442	5,251	16.8	6.48	1.872	403
400 X 300	6	9	5.0	77.42	60.8	23,429	4,070	17.4	7.25	1.121	270
	6	12	5.0	95.06	74.6	29,764	5,400	17.7	7.55	1.488	360



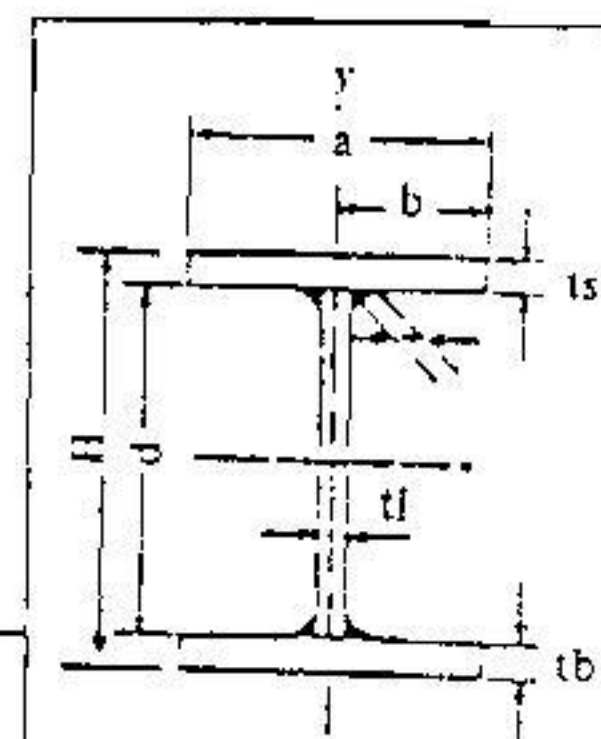
Ukuran Profil - H. mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerast		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
400 X 300	6	14	5.0	106.82	83.9	33.676	6.300	17.8	7.09	1.693	420
	9	12	6.3	106.63	83.7	31.093	5.402	17.1	7.14	1.554	360
	9	14	6.3	118.27	92.8	35.163	6.302	17.2	7.32	1.758	420
	9	16	6.3	129.91	102	39.147	7.202	17.4	7.46	1.957	480
	12	16	8.4	141.57	111	40.393	7.205	16.9	7.16	2.019	480
	12	19	8.4	168.85	125	46.148	8.555	17.1	7.37	2.307	570
	12	22	8.4	176.13	138	51.716	9.905	17.1	7.52	2.585	660
	12	25	8.4	193.41	152	57.099	11.255	17.2	7.65	2.854	750
400 X 325	6	9	5.0	81.92	64.3	25.149	5.149	17.5	7.95	1.257	316
	6	12	5.0	101.06	79.3	32.023	6.866	17.9	8.26	1.601	422
	6	14	5.0	113.52	89.3	36.485	8.010	17.9	8.40	1.824	492
	9	12	6.3	112.63	88.4	33.352	6.867	17.2	7.83	1.667	422
	9	14	6.3	125.27	98.3	37.772	8.012	17.4	8.02	1.888	493
	9	16	6.3	137.91	108	42.098	9.156	17.5	8.17	2.104	563
	12	16	8.4	149.57	117	43.344	9.159	17.1	7.86	2.167	563
	12	19	8.4	168.35	132	49.598	10.875	17.2	8.07	2.479	669
	12	22	8.4	187.13	147	55.650	12.592	17.3	8.23	2.782	774
	12	25	8.4	206.91	162	61.500	14.308	17.3	8.36	3.075	880
400 X 350	6	9	5.0	86.42	67.8	26.859	6.431	17.6	8.55	1.343	367
	6	12	5.0	107.06	84.0	34.282	8.575	17.9	8.97	1.714	490
	6	14	5.0	120.82	94.8	39.093	10.004	18.0	9.11	1.954	571
	9	12	6.3	118.63	93.1	35.611	8.577	17.3	8.53	1.780	490
	9	14	6.3	132.27	104	40.380	10.006	17.5	8.72	2.019	571
	9	16	6.3	145.91	115	45.049	11.435	17.6	8.87	2.252	653
	12	16	8.4	157.57	124	46.295	11.438	17.2	8.55	2.314	653
	12	19	8.4	177.85	140	53.049	13.582	17.3	8.77	2.652	776
	12	22	8.4	198.13	156	59.584	15.725	17.3	8.94	2.979	898
	12	25	8.4	218.41	171	65.901	17.869	17.4	9.07	3.295	1.021
400 X 375	6	9	5.0	90.92	71.4	28.590	7.910	17.7	9.35	1.429	421
	6	12	5.0	113.06	88.8	36.541	10.547	18.0	9.67	1.827	562
	6	14	5.0	127.82	100	41.702	12.305	18.0	9.83	2.085	656
	9	12	6.3	124.63	97.8	37.870	10.549	17.4	9.22	1.893	562
	9	14	6.3	139.27	109	42.989	12.306	17.5	9.42	2.149	656
	9	16	6.3	153.91	121	48.000	14.064	17.5	9.58	2.400	750
	12	16	8.4	165.57	130	49.246	14.067	17.3	9.25	2.462	750
	12	19	8.4	187.35	147	56.499	16.704	17.4	9.47	2.824	890
	12	22	8.4	200.12	161	63.517	19.341	17.4	9.64	3.175	1.031
	12	25	8.4	220.91	181	70.302	21.977	17.4	9.76	3.515	1.172



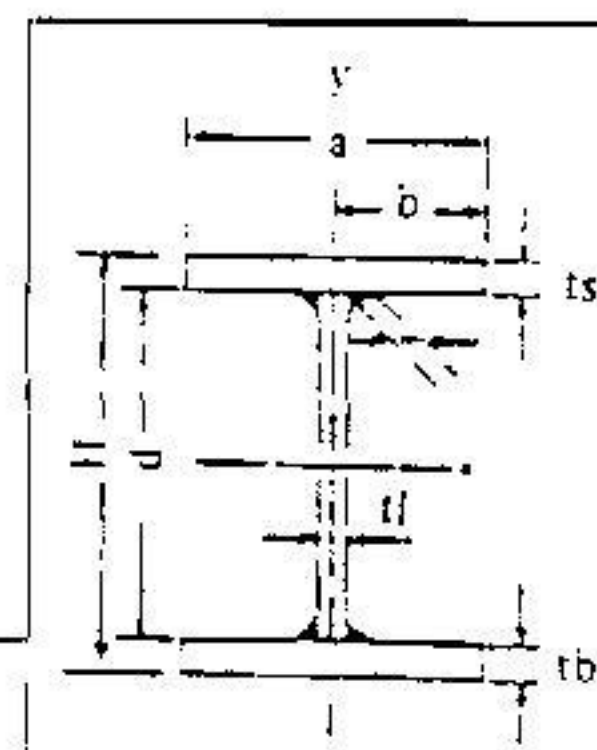
Ukuran Profil H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
400 X 400	6	9	5.0	95.42	74.9	30 210	9 600	17.9	10.0	1 515	480
	6	12	5.0	119.06	93.5	38 799	12 800	18.0	10.3	1 939	640
	6	14	5.0	134.92	106	44 310	14 933	18.1	10.5	2 215	746
	9	12	6.3	130.63	103	40 128	12 902	17.5	9.92	2 006	640
	9	14	6.3	146.27	115	45 597	14 935	17.6	10.1	2 279	746
	9	16	6.3	161.91	127	50 950	17 068	17.7	10.2	2 547	853
	12	16	8.4	173.57	136	52 196	17 071	17.4	9.95	2 609	853
	12	19	8.4	196.85	155	59 950	20 271	17.4	10.1	2 997	1 012
	12	22	8.4	220.13	173	67 451	23 471	17.5	10.3	3 372	1 173
	12	25	8.4	243.41	191	74 703	26 671	17.5	10.4	3 735	1 332
	16	22	11.2	235.46	185	66 955	23 478	17.1	10.0	3 447	1 173
	16	25	11.2	256.50	203	76 132	26 678	17.2	10.1	3 808	1 333
	16	28	11.2	281.54	221	83 058	29 676	17.2	10.3	4 153	1 493
	16	32	11.2	312.26	245	91 947	34 144	17.2	10.4	4 587	1 707
450 X 200	6	9	5.0	62.42	49.0	21 526	1 200	18.6	4.40	957	120
	6	12	5.0	74.06	58.1	26 892	1 600	19.1	4.66	1 195	160
	9	12	6.3	87.13	68.4	28 825	1 602	18.2	4.30	1 281	160
	9	14	6.3	94.77	74.4	32 258	1 869	18.5	4.46	1 433	186
	9	16	6.3	102.41	80.4	35 628	2 135	18.7	4.58	1 583	213
	12	16	8.4	115.57	90.7	37 454	2 139	18.1	4.32	1 654	213
	12	19	8.4	126.85	99.6	42 310	2 539	18.3	4.49	1 820	253
450 X 225	6	9	5.0	66.92	52.5	23 724	1 709	18.8	5.07	1 054	151
	6	12	5.0	80.05	62.8	29 770	2 278	19.3	5.35	1 323	202
	9	12	6.3	93.13	73.1	31 703	2 280	18.5	4.96	1 409	202
	9	14	6.3	101.77	79.9	35 586	2 660	18.7	5.13	1 551	236
	9	16	6.3	110.41	86.7	39 396	3 040	18.9	5.26	1 750	270
	12	16	8.4	123.57	97.0	41 222	3 043	18.3	4.98	1 832	270
	12	19	8.4	136.35	107	46 725	3 612	18.5	5.17	2 076	321
450 X 250	6	9	5.0	71.42	56.1	25 913	2 344	19.1	5.74	1 151	187
	6	12	5.0	86.06	67.6	32 649	3 125	19.5	6.04	1 451	250
	9	12	6.3	99.13	77.8	34 581	3 127	18.7	5.63	1 536	250
	9	14	6.3	108.77	85.4	38 914	3 648	18.9	5.81	1 729	291
	9	16	6.3	118.41	93.0	43 165	4 169	19.1	5.95	1 918	333
	12	16	8.4	131.57	103	44 991	4 172	19.0	5.66	1 999	333
	12	19	8.4	145.35	114	51 139	4 953	18.7	5.85	2 272	390



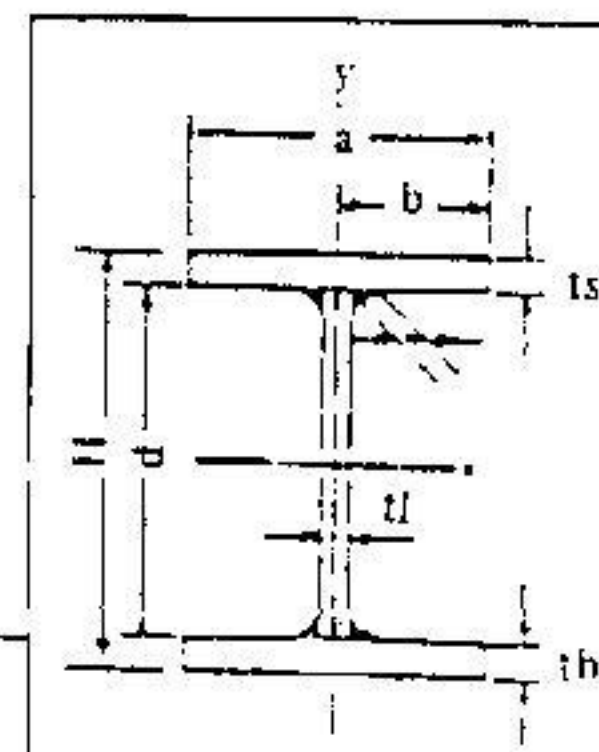
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			ix	iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
450 X 275	6	9	5.0	75.92	59.6	28.101	3.120	19.3	6.43	1.248	226
	6	12	5.0	92.06	72.3	35.527	4.160	19.6	6.73	1.578	302
	9	12	6.3	105.13	82.5	37.400	4.161	18.9	6.31	1.664	302
	9	14	6.3	115.77	90.9	42.242	4.855	19.1	6.49	1.977	353
	9	16	6.3	126.41	99.2	46.934	5.548	19.3	6.64	2.085	403
	12	16	8.4	139.57	110	48.760	5.551	18.7	5.33	2.167	403
	12	19	8.4	155.35	122	55.554	6.591	18.9	6.54	2.469	479
450 X 300	6	9	5.0	80.42	63.1	30.289	4.050	19.4	7.11	1.045	270
	6	12	5.0	98.06	77.0	38.405	5.400	19.8	7.43	1.706	360
	6	14	5.0	109.82	86.2	43.691	6.300	19.9	7.59	1.941	420
	9	12	6.3	111.13	87.2	40.338	5.402	19.1	6.99	1.732	360
	9	14	6.3	122.77	96.4	45.570	6.302	19.3	7.18	2.025	420
	9	16	6.3	134.41	106	50.703	7.202	19.4	7.34	2.253	480
	12	16	8.4	147.57	116	52.529	7.206	18.9	7.02	2.034	480
	12	19	8.4	164.85	129	59.969	8.555	19.1	7.23	2.665	570
	12	22	8.4	182.13	143	67.196	9.905	19.2	7.40	2.986	660
	12	25	8.4	199.41	157	74.212	11.255	19.3	7.53	3.295	750
450 X 325	6	9	5.0	84.92	66.7	32.477	5.149	19.6	7.80	1.443	316
	6	12	5.0	104.06	81.7	41.284	6.866	19.9	8.14	1.834	422
	6	14	5.0	116.62	91.7	47.019	8.010	20.1	8.29	2.039	492
	9	12	6.3	117.13	91.9	43.216	6.868	19.2	7.68	1.920	422
	9	14	6.3	129.77	102	48.897	8.012	19.4	7.88	2.173	493
	9	16	6.3	142.41	112	54.472	9.156	19.6	8.04	2.420	563
	12	16	8.4	155.57	122	56.298	9.160	19.1	7.70	2.502	563
	12	19	8.4	174.35	137	64.383	10.876	19.2	7.92	2.861	669
	12	22	8.4	193.13	152	72.238	12.592	19.4	8.10	3.210	774
	12	25	8.4	211.91	166	79.663	14.309	19.4	8.24	3.549	880
450 X 350	6	9	5.0	89.42	70.2	34.665	6.431	19.7	8.50	1.640	367
	6	12	5.0	110.06	86.4	44.162	8.575	20.0	8.84	1.932	490
	6	14	5.0	123.82	97.2	50.346	10.004	20.2	9.00	2.237	571
	9	12	6.3	123.13	96.7	46.095	6.577	19.4	8.37	2.048	490
	9	14	6.3	136.77	107	52.225	10.006	19.5	8.57	2.321	571
	9	16	6.3	150.41	118	58.240	11.435	19.7	8.74	2.588	653
	12	16	8.4	163.57	128	60.066	11.439	19.2	8.39	2.663	653
	12	19	8.4	183.85	144	68.798	13.582	19.4	8.62	3.037	776
	12	22	8.4	204.13	160	77.280	15.726	19.5	8.80	3.404	880
	12	25	8.4	224.41	176	85.514	17.870	19.5	8.95	3.800	1,021



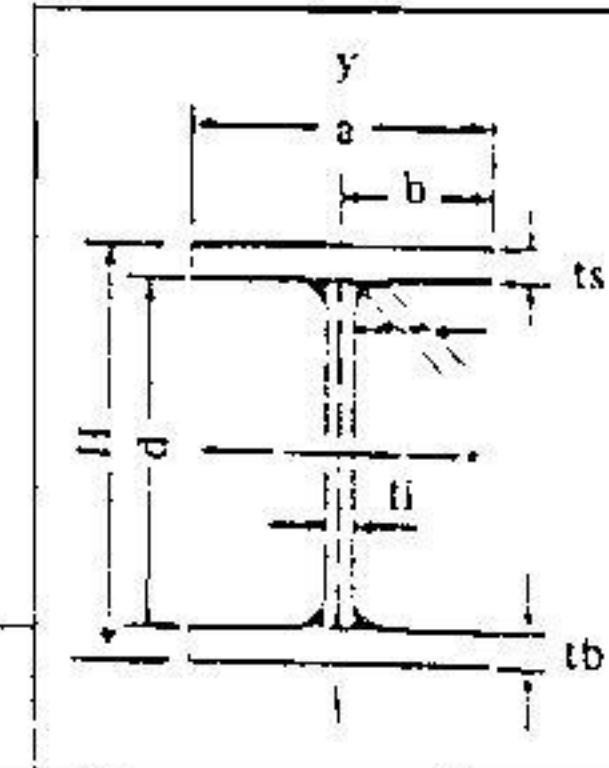
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
450 X 375	6	9	5.0	93.92	73.7	36.854	7.910	19.8	9.20	1.637	421
	6	12	5.0	116.06	91.1	47.041	10.547	20.1	9.55	2.090	562
	6	14	5.0	130.82	103	53.674	12.305	20.2	9.71	2.395	655
	9	12	6.3	129.13	101	48.973	10.549	19.5	9.06	2.176	562
	9	14	6.3	143.77	113	55.553	12.307	19.7	9.27	2.469	656
	9	16	6.3	158.41	124	62.009	14.065	19.8	9.44	2.755	750
	12	16	8.4	171.57	135	63.835	14.068	19.3	9.09	2.837	750
	12	19	8.4	193.35	152	73.213	16.705	19.5	9.32	3.253	890
	12	22	8.4	215.13	169	82.322	19.341	19.6	9.51	3.658	1.031
	12	25	8.4	236.91	186	91.155	21.978	19.6	9.65	4.051	1.172
450 X 400	6	9	5.0	98.42	77.3	39.042	9.600	19.9	9.90	1.735	480
	6	12	5.0	122.06	95.8	49.919	12.800	20.2	10.2	2.218	640
	6	14	5.0	137.82	108	57.002	14.924	20.3	10.4	2.533	746
	9	12	6.3	135.13	106	51.852	12.802	19.6	9.76	2.304	640
	9	14	6.3	150.77	118	58.981	14.935	19.8	9.97	2.616	746
	9	16	6.3	166.41	131	65.778	17.059	19.9	10.1	2.923	853
	12	12	8.4	148.53	117	53.784	12.806	19.1	9.32	2.390	640
	12	16	8.4	179.57	141	67.604	17.072	19.4	9.78	3.004	853
	12	19	8.4	202.85	159	77.627	20.272	19.6	10.0	3.450	1.013
	12	22	8.4	226.13	178	87.364	23.472	19.7	10.2	3.882	1.173
	12	25	8.4	249.41	196	96.816	26.672	19.7	10.3	4.302	1.333
450 X 425	6	9	5.0	102.92	80.8	41.230	11.515	20.0	10.5	1.832	541
	6	12	5.0	128.06	101	52.797	15.353	20.3	10.9	2.346	722
	6	14	5.0	144.82	114	60.230	17.912	20.4	11.1	2.681	842
	9	12	6.3	141.13	111	54.730	15.355	19.7	10.4	2.432	722
	9	14	6.3	157.77	124	62.209	17.914	19.9	10.6	2.764	843
	9	16	6.3	174.41	137	69.547	20.473	20.0	10.8	3.090	963
	12	12	8.4	154.53	121	56.663	15.359	19.2	10.0	2.518	722
	12	16	8.4	187.57	147	71.373	20.476	19.5	10.4	3.172	963
	12	19	8.4	212.35	167	82.042	24.315	19.7	10.7	3.646	1.144
	12	20	8.4	220.61	173	85.531	25.594	19.7	10.7	3.801	1.204
	12	25	8.4	261.91	206	102.467	31.991	19.8	11.0	4.554	1.505
450 X 450	6	9	5.0	107.42	84.3	43.418	13.669	20.1	11.2	1.929	607
	6	12	5.0	134.06	105	55.676	18.225	20.4	11.6	2.474	810
	6	14	5.0	151.82	119	63.658	21.263	20.4	11.8	2.829	945
	9	12	6.3	147.13	115	57.608	18.227	19.8	11.1	2.560	810
	9	14	6.3	164.77	129	65.537	21.265	19.9	11.3	2.912	945



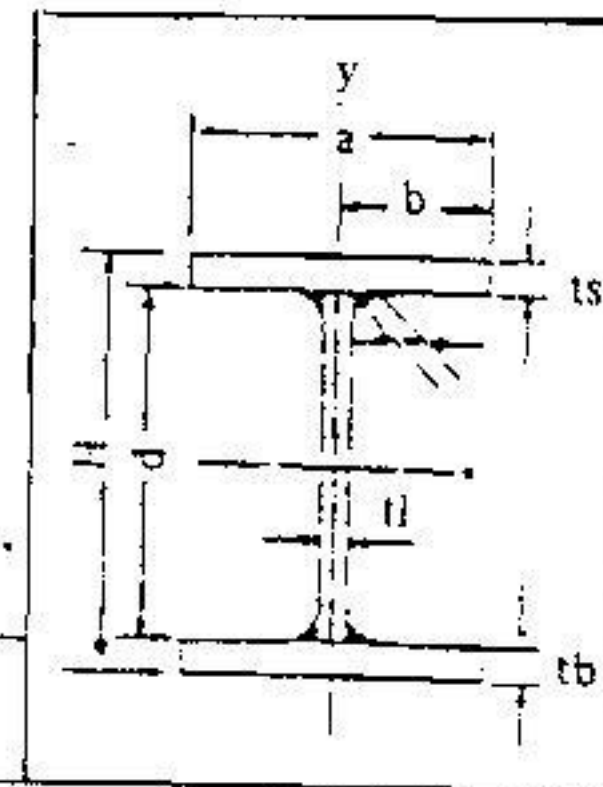
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
	9	16	6.3	152.41	143	73.316	24.302	20.0	11.5	3.258	1.060
	12	12	8.4	160.53	126	59.541	18.231	19.3	10.6	2.646	510
	12	16	8.4	195.57	154	75.142	24.306	19.6	11.1	3.339	1.030
	12	19	8.4	221.85	174	86.457	28.862	19.8	11.4	3.842	1.282
	12	22	8.4	248.13	195	97.448	33.418	19.8	11.6	4.331	1.485
	12	25	8.4	274.41	215	108.118	37.974	19.9	11.7	4.805	1.637
500 X 200	6	9	5.0	65.42	51.4	27.298	1.200	20.4	4.29	1.091	120
	6	12	5.0	77.06	60.5	33.975	1.600	21.0	4.56	1.359	160
	6	14	5.0	84.82	66.6	38.334	1.867	21.3	4.70	1.533	186
	9	12	6.3	91.63	71.9	36.671	1.602	20.0	4.19	1.466	160
	9	14	6.3	99.27	77.9	40.962	1.869	20.3	4.35	1.638	186
	9	16	6.3	106.91	83.9	45.182	2.135	20.6	4.48	1.807	212
	12	16	8.4	121.57	95.4	47.744	2.140	19.9	4.21	1.909	214
	12	19	8.4	132.85	104	53.842	2.539	20.2	4.39	2.153	253
	12	22	8.4	144.13	113	59.783	2.939	20.4	4.53	2.391	293
	12	25	8.4	155.41	122	65.570	3.339	20.6	4.65	2.622	333
500 X 225	6	9	5.0	69.92	54.9	30.011	1.709	20.7	4.96	1.200	151
	6	12	5.0	83.06	65.2	37.548	2.278	21.3	5.25	1.501	202
	6	14	5.0	91.82	72.1	42.468	2.658	21.5	5.39	1.698	236
	9	12	6.3	97.63	76.6	40.244	2.280	20.3	4.85	1.609	202
	9	14	6.3	106.27	83.4	45.097	2.660	20.6	5.02	1.803	236
	9	16	6.3	114.91	90.2	49.869	3.040	20.8	5.15	1.994	270
	12	16	8.4	129.57	102	52.431	3.044	20.2	4.87	2.097	270
	12	19	8.4	142.35	112	59.339	3.613	20.5	5.06	2.373	321
	12	22	8.4	155.13	122	66.071	4.183	20.7	5.21	2.642	371
	12	25	8.4	167.91	132	72.627	4.752	20.8	5.34	2.905	422
500 X 250	6	9	5.0	74.42	58.4	32.723	2.344	21.0	5.63	1.308	187
	6	12	5.0	89.06	69.9	41.121	3.125	21.5	5.93	1.644	250
	6	14	5.0	98.82	77.6	46.603	3.646	21.7	6.08	1.864	291
	9	12	6.3	103.63	81.3	43.617	3.127	20.6	5.51	1.752	250
	9	14	6.3	113.27	88.9	49.232	3.648	20.8	5.69	1.969	291
	9	16	6.3	122.91	96.5	54.555	4.169	21.1	5.84	2.182	333
	9	19	6.3	137.37	108	62.372	4.950	21.3	6.01	2.494	396
	12	16	8.4	137.57	108	57.118	4.173	20.4	5.53	2.284	333
	12	19	8.4	151.85	119	64.837	4.954	20.7	5.73	2.593	396
	12	22	8.4	166.13	130	72.359	5.735	20.9	5.90	2.894	458
	12	25	8.4	180.41	142	79.685	6.516	21.0	6.05	3.187	521



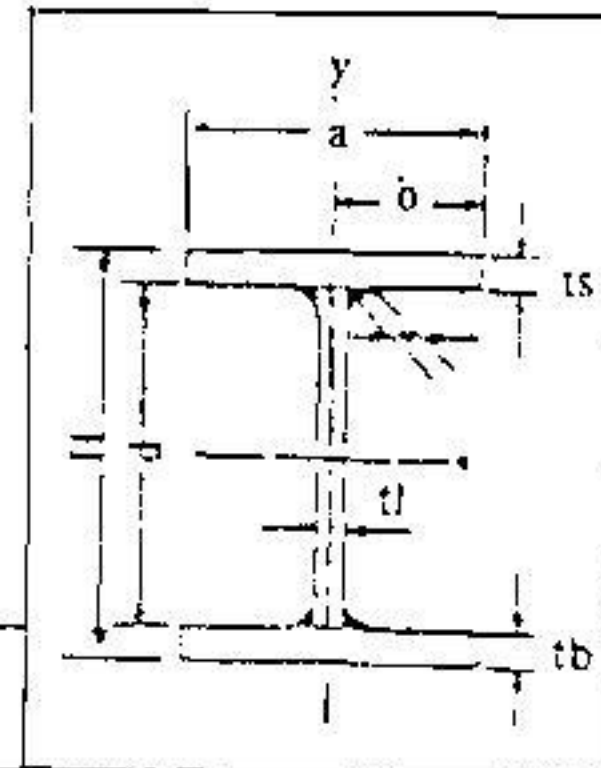
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-flang	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tf	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
500 X 275	6	9	5.0	78.92	62.0	35.435	3.120	21.2	6.30	1.417	226
	6	12	5.0	95.06	74.6	44.694	4.160	21.7	6.63	1.767	302
	6	14	5.0	105.82	83.1	50.737	4.853	21.9	6.78	2.029	352
	9	12	6.3	109.63	86.1	47.390	4.162	20.8	6.18	1.895	302
	9	14	6.3	120.27	94.4	53.365	4.855	21.1	6.37	2.135	353
	9	16	6.3	130.91	103	59.242	5.548	21.3	6.52	2.369	403
	9	19	6.3	146.87	115	67.870	6.538	21.5	6.71	2.714	479
	12	16	8.4	145.57	114	61.805	5.552	20.6	6.20	2.472	403
	12	19	8.4	161.35	127	70.335	6.592	20.9	6.41	2.813	479
	12	22	8.4	177.13	139	78.647	7.632	21.1	6.58	3.145	555
12	25	8.4	192.91	151	86.742	8.671	21.2	6.72	3.469	630	
500 X 300	6	9	5.0	83.42	65.5	38.148	4.050	21.4	6.98	1.525	270
	6	12	5.0	101.06	79.3	48.256	5.400	21.8	7.32	1.930	360
	6	14	5.0	112.82	88.6	54.872	6.000	22.1	7.48	2.194	420
	9	12	6.3	115.63	90.8	50.963	5.402	21.0	6.85	2.038	360
	9	14	6.3	127.27	99.9	57.501	6.302	21.3	7.05	2.300	420
	9	16	6.3	138.91	109	63.929	7.202	21.5	7.22	2.557	480
	9	19	6.3	156.37	123	73.367	8.552	21.6	7.41	2.934	570
	9	22	7.0	174.02	137	82.564	9.902	21.8	7.56	3.302	660
	9	25	7.0	191.48	150	91.521	11.252	21.8	7.68	3.660	750
	12	19	8.4	170.85	134	75.632	8.555	21.1	7.10	3.033	570
	12	22	8.4	183.13	148	84.934	9.906	21.3	7.28	3.397	660
	12	25	8.4	205.41	161	93.799	11.256	21.4	7.42	3.751	750
	16	25	11.2	224.50	176	96.837	11.265	20.8	7.12	3.873	751
	16	28	11.2	241.54	190	105.349	12.615	20.9	7.26	4.213	841
	16	32	11.2	264.26	207	116.346	14.414	21.0	7.42	4.653	950
500 X 325	6	9	5.0	87.92	69.0	40.860	5.150	21.6	7.67	1.634	316
	6	12	5.0	107.06	84.0	51.839	6.365	22.0	8.02	2.073	422
	6	14	5.0	119.82	94.1	59.007	8.010	22.2	8.19	2.360	492
	9	12	6.3	121.63	95.5	54.536	6.868	21.2	7.53	2.181	422
	9	14	6.3	134.27	105	61.635	8.012	21.4	7.74	2.465	493
	9	16	6.3	146.91	115	68.616	9.156	21.6	7.91	2.744	563
	9	19	6.3	165.87	130	78.865	10.873	21.8	8.11	3.154	669
	9	22	7.0	185.02	145	88.852	12.589	21.9	8.27	3.554	774
	9	25	7.0	203.98	160	98.578	14.306	22.0	8.39	3.943	890
	12	19	8.4	180.35	142	81.330	10.877	21.3	7.79	3.253	669
	12	22	8.4	199.13	156	91.222	12.593	21.4	7.98	3.648	774
	12	25	8.4	217.91	171	100.856	14.309	21.5	8.12	4.034	880
	16	25	11.2	237.00	186	103.894	14.318	21.0	7.81	4.155	881
	16	28	11.2	255.51	201	112.122	16.034	21.1	7.95	4.526	986
	16	32	11.2	280.26	220	125.120	18.323	21.2	8.12	5.004	1147



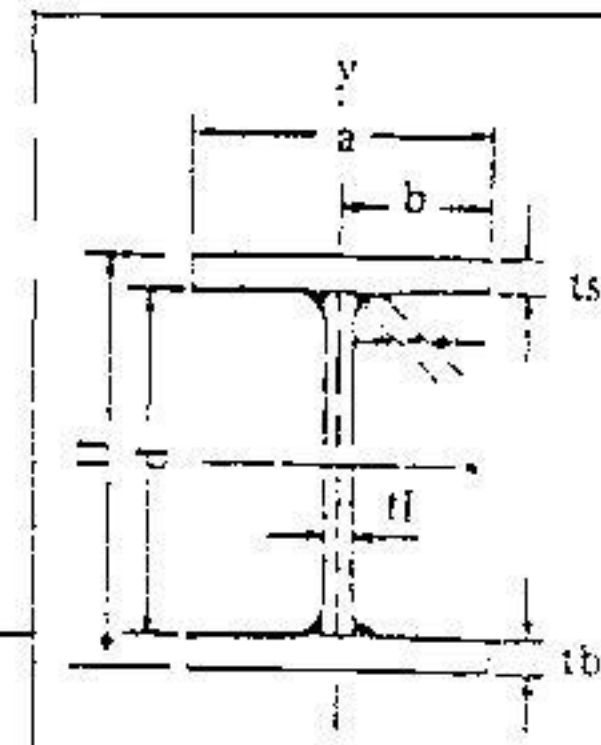
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
500 X 350	6	9	5.0	92.42	72.5	43.573	6.432	21.7	8.36	1.742	367
	6	12	5.0	113.06	88.8	55.412	8.575	22.1	8.72	2.216	490
	6	14	5.0	126.82	99.6	63.141	10.004	22.3	8.89	2.525	571
	9	12	6.3	127.63	100	58.108	8.577	21.3	8.22	2.224	490
	9	14	6.3	141.27	111	65.770	10.006	21.6	8.43	2.630	571
	9	16	6.3	154.91	122	73.303	11.436	21.7	8.61	2.932	653
	9	19	6.3	175.37	138	84.363	13.579	21.9	8.81	3.374	775
	9	22	7.0	196.02	154	95.139	15.723	22.0	8.97	3.805	898
	9	25	7.0	216.48	170	105.635	17.867	22.1	9.10	4.225	1.020
	12	16	8.4	169.57	133	75.855	11.440	21.2	8.24	3.034	653
	12	19	8.4	189.85	149	86.828	13.583	21.4	8.48	3.473	776
	12	22	8.4	210.13	165	97.510	15.727	21.6	8.67	3.900	898
	12	25	8.4	230.41	181	107.914	17.870	21.6	8.83	4.316	1.021
	16	25	11.2	249.50	196	110.951	17.879	21.1	8.50	4.438	1.021
	16	28	11.2	269.54	212	120.962	20.023	21.2	8.55	4.838	1.144
	16	32	11.2	296.26	233	133.895	22.881	21.3	8.82	5.355	1.307
500 X 375	6	9	5.0	96.92	76.1	46.285	7.910	21.8	9.05	1.851	421
	6	12	5.0	119.06	93.5	58.985	10.547	22.2	9.43	2.359	562
	6	14	5.0	133.82	105	67.276	12.305	22.4	9.60	2.691	656
	9	12	6.3	133.63	105	61.681	10.549	21.5	8.91	2.467	562
	9	14	6.3	148.27	116	69.904	12.307	21.7	9.13	2.796	656
	9	16	6.3	162.91	128	77.990	14.065	21.9	9.31	3.119	750
	9	19	6.3	184.87	145	89.860	16.702	22.0	9.52	3.594	890
	9	22	7.0	207.02	163	101.427	19.338	22.1	9.68	4.057	1.031
	9	25	7.0	228.98	180	112.693	21.975	22.2	9.81	4.507	1.172
	12	16	8.4	177.57	139	80.552	14.069	21.3	8.93	3.222	750
	12	19	8.4	199.35	156	92.325	16.706	21.5	9.18	3.693	890
	12	22	8.4	221.13	174	103.797	19.342	21.7	9.38	4.151	1.031
	12	25	8.4	242.91	191	114.971	21.979	21.8	9.53	4.598	1.172
	16	25	11.2	262.00	206	118.008	21.957	21.3	9.20	4.720	1.172
	16	28	11.2	283.54	223	128.769	24.624	21.3	9.35	5.150	1.313
	16	32	11.2	312.26	245	142.670	28.139	21.4	9.53	5.706	1.500
500 X 400	6	14	5.0	140.82	111	71.410	14.934	22.5	10.3	2.856	746
	9	16	6.3	170.91	134	82.676	17.069	22.0	10.0	3.307	853
	9	19	6.3	194.37	153	95.358	20.369	22.1	10.2	3.814	1.013
	12	12	8.4	154.53	121	67.951	12.806	21.0	9.14	2.718	640
	12	14	8.4	170.05	133	76.668	14.940	21.3	9.41	3.066	747
	12	16	8.4	185.57	146	85.239	17.073	21.5	9.62	3.409	853



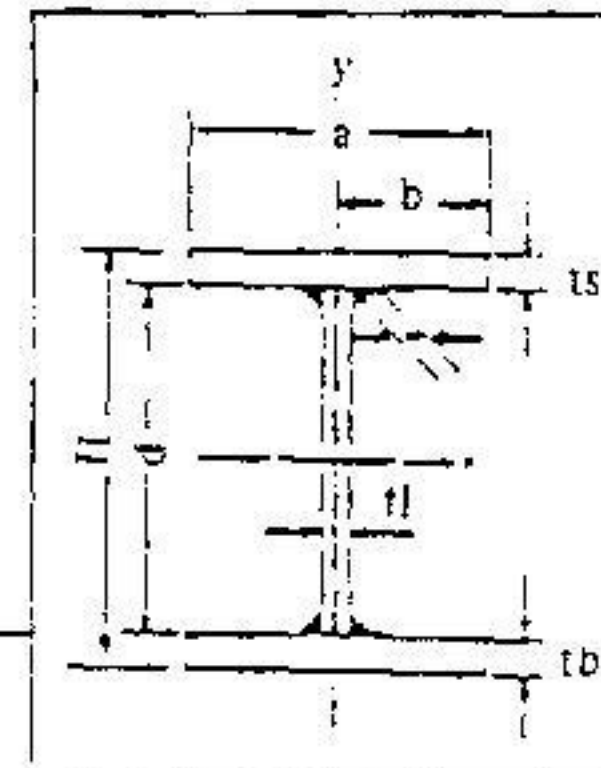
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-ayap	LL			I _x	I _y	I _x	I _y	Z _x	Z _y
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
500 X 400	12	19	8.4	208.86	164	97.623	20.273	21.6	9.88	3.912	1.013
	12	22	8.4	232.12	182	110.085	23.473	21.8	10.0	4.403	1.173
	12	25	8.4	255.41	200	122.028	26.673	21.8	10.2	4.881	1.333
	16	19	11.2	222.42	179	101.110	20.282	21.1	9.47	4.044	1.014
	16	22	11.2	251.46	197	113.246	23.482	21.3	9.71	4.529	1.174
	16	25	11.2	274.50	215	125.066	26.681	21.4	9.90	5.002	1.334
	16	28	11.2	297.54	234	136.575	29.881	21.5	10.0	5.463	1.494
	16	32	11.2	328.26	258	151.444	34.148	21.5	10.2	6.057	1.707
500 X 425	6	14	5.0	147.82	116	75.545	17.912	22.6	11.0	3.021	842
	9	16	6.3	178.91	140	87.363	20.473	22.1	10.6	3.494	963
	9	19	6.3	203.87	160	100.855	24.311	22.2	10.9	4.034	1.144
	12	12	8.4	160.53	126	71.523	15.359	21.1	9.82	2.860	722
	12	14	8.4	177.05	139	80.803	17.918	21.4	10.0	3.232	843
	12	16	8.4	192.57	152	89.926	20.477	21.6	10.3	3.597	963
	12	19	8.4	218.35	171	103.321	24.315	21.8	10.5	4.132	1.144
	12	22	8.4	243.13	191	116.373	28.153	21.9	10.7	4.654	1.324
	12	25	8.4	267.91	210	129.085	31.992	22.0	10.9	5.163	1.505
	16	19	11.2	237.92	187	106.608	24.324	21.2	10.1	4.264	1.144
	16	22	11.2	262.46	206	119.534	29.162	21.4	10.3	4.781	1.325
	16	25	11.2	287.00	225	132.123	32.000	21.5	10.5	5.284	1.505
	16	28	11.2	311.54	245	144.382	35.839	21.6	10.7	5.775	1.686
	16	32	11.2	344.26	270	160.219	40.956	21.6	10.9	6.408	1.927
500 X 450	6	14	5.0	154.82	122	79.679	21.263	22.7	11.7	3.187	945
	9	16	6.3	186.91	147	92.050	24.302	22.2	11.4	3.682	1.080
	9	19	6.3	213.37	167	106.353	28.858	22.3	11.6	4.254	1.282
	12	12	8.4	166.53	131	75.096	18.231	21.3	10.4	3.003	810
	12	14	8.4	184.05	144	84.937	21.289	21.5	10.7	3.397	945
	12	16	8.4	201.57	158	94.613	24.306	21.7	11.0	3.784	1.090
	12	19	8.4	227.94	179	108.818	28.862	21.9	11.2	4.352	1.282
	12	22	8.4	254.13	199	122.661	33.419	22.0	11.4	4.906	1.485
	12	25	8.4	280.41	220	136.143	37.975	22.0	11.6	5.445	1.687
	16	19	11.2	247.42	194	112.105	28.871	21.3	10.8	4.484	1.283
	16	22	11.2	273.46	215	125.321	33.426	21.5	11.1	5.032	1.485
	16	25	11.2	299.50	235	139.180	37.984	21.6	11.2	5.567	1.688
	16	28	11.2	325.54	256	152.188	42.540	21.6	11.4	6.087	1.890
	16	32	11.2	360.26	283	168.993	48.614	21.7	11.6	6.759	2.160
500 X 475	6	14	5.0	161.82	127	83.814	25.007	22.7	12.4	3.352	1.052
	9	16	6.3	194.91	152	95.707	28.581	22.3	12.1	3.863	1.203



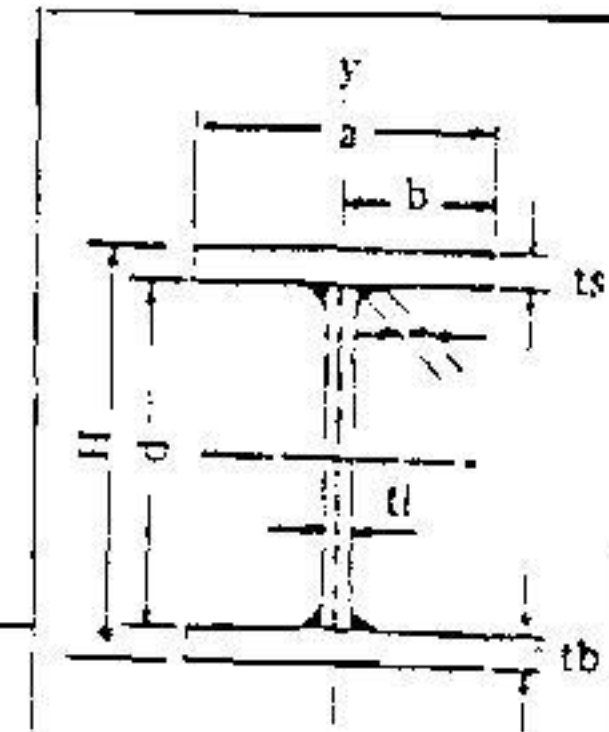
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
500 X 475	9	19	6.3	222.87	175	111.851	33.940	22.4	12.3	4.474	1.429
	12	12	8.4	172.53	135	78.669	21.441	21.4	11.1	3.146	902
	12	14	8.4	191.05	150	89.072	25.013	21.6	11.4	3.562	1.053
	12	16	8.4	209.57	165	99.299	28.585	21.8	11.6	3.971	1.203
	12	19	8.4	237.35	186	114.316	33.944	22.0	11.9	4.572	1.429
	12	22	8.4	265.13	208	128.948	39.302	22.1	12.1	5.157	1.654
	12	25	8.4	292.91	230	143.200	44.661	22.1	12.3	5.728	1.880
	16	19	11.2	256.92	202	117.603	33.953	21.4	11.5	4.704	1.429
	16	22	11.2	284.46	223	132.109	39.311	21.6	11.7	5.284	1.655
	16	25	11.2	312.00	245	146.237	44.670	21.7	12.0	5.849	1.860
	16	28	11.2	339.54	267	159.995	50.028	21.7	12.1	6.399	2.106
	16	32	11.2	376.26	295	177.768	57.173	21.7	12.3	7.110	2.407
500 X 500	9	16	6.3	202.91	159	101.424	33.336	22.3	12.8	4.056	1.333
	12	16	8.4	217.57	171	103.986	32.340	21.9	12.4	4.159	1.332
	12	19	8.4	246.85	194	119.814	39.589	22.0	12.6	4.792	1.553
	12	22	8.4	276.13	217	135.236	45.839	22.1	12.8	5.409	1.833
	12	25	8.4	305.41	240	150.257	52.089	22.2	13.0	6.010	2.083
	16	16	11.2	237.38	186	107.403	33.349	21.3	11.8	4.295	1.333
	16	19	11.2	266.42	209	122.101	39.599	21.5	12.2	4.924	1.563
	16	22	11.2	295.46	232	136.397	45.848	21.7	12.4	5.535	1.833
	16	25	11.2	324.50	255	153.295	52.098	21.8	12.6	6.131	2.083
	16	28	11.2	353.54	278	167.802	58.348	21.8	12.8	6.712	2.333
	16	32	11.2	392.26	308	186.543	66.681	21.8	13.0	7.461	2.667
	19	19	14.0	281.70	221	125.566	39.609	21.2	11.9	5.022	1.584
	19	22	14.0	310.56	244	140.767	45.859	21.4	12.2	5.630	1.834
	19	25	14.0	339.42	266	155.573	52.109	21.5	12.4	6.222	2.084
	19	28	14.0	368.28	289	169.990	58.356	21.5	12.6	6.799	2.334
	19	32	14.0	406.76	319	188.615	66.691	21.6	12.8	7.544	2.667
550 X 200	6	9	5.0	68.42	53.7	33.872	1.200	22.3	4.20	1.231	120
	6	12	5.0	80.06	62.8	42.015	1.600	22.9	4.48	1.527	160
	6	14	5.0	87.52	68.9	47.342	1.867	23.2	4.62	1.721	186
	9	12	6.3	96.13	75.5	45.653	1.603	21.8	4.10	1.650	160
	9	14	6.3	103.77	81.5	50.898	1.869	22.2	4.25	1.850	186
	9	16	6.3	111.41	87.5	56.062	2.136	22.5	4.39	2.038	213
	12	16	8.4	127.57	100	58.537	2.140	21.7	4.11	2.164	214
	12	19	8.4	138.85	109	67.016	2.540	22.0	4.29	2.436	254
	12	22	8.4	150.13	118	74.323	2.940	22.3	4.44	2.702	284
	12	25	8.4	161.41	127	81.458	3.340	22.5	4.56	2.962	334




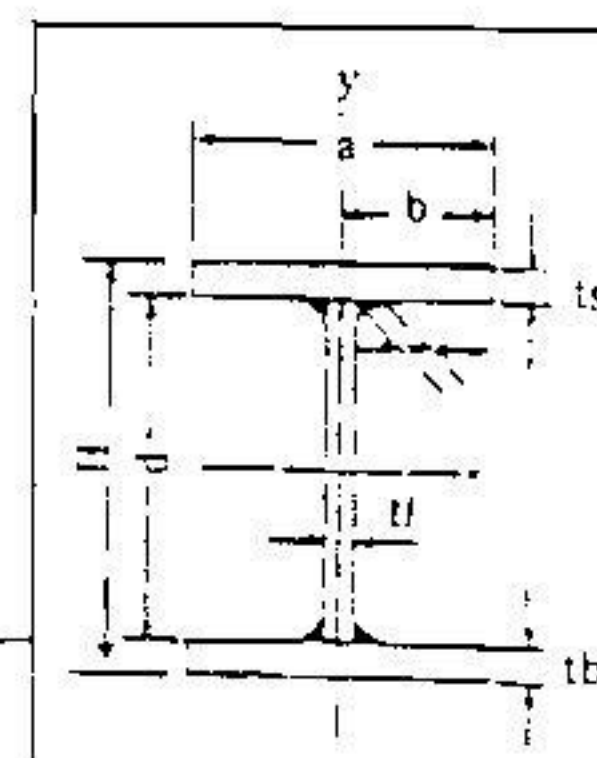
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
550 X 250	6	9	5.0	77.42	60.8	40.457	2.344	22.9	5.51	1.471	187
	6	12	5.0	92.06	72.3	50.700	3.125	22.5	5.84	1.843	250
	6	14	5.0	101.82	79.9	57.400	3.646	23.7	5.99	2.087	291
	9	12	6.3	108.13	84.9	54.338	3.128	22.4	5.39	1.975	250
	9	14	6.3	117.77	92.4	60.955	3.648	22.8	5.58	2.216	291
	9	16	6.3	127.41	100	67.472	4.169	23.0	5.73	2.453	330
	9	19	6.3	141.87	111	77.060	4.951	23.3	5.92	2.802	395
	12	16	8.4	143.57	113	70.947	4.174	22.3	5.41	2.573	333
	12	19	8.4	157.85	124	80.415	4.955	22.6	5.62	2.924	398
	17	22	8.4	172.13	135	89.665	5.736	22.8	5.79	3.260	458
12	25	8.4	186.41	146	98.697	6.517	23.0	5.93	3.588	521	
550 X 300	6	9	5.0	86.42	67.8	47.043	4.050	23.3	6.86	1.710	270
	6	12	5.0	104.06	81.7	59.284	5.400	23.9	7.22	2.159	360
	6	14	5.0	115.82	90.9	67.457	6.300	24.1	7.39	2.452	420
	9	12	6.3	120.13	94.3	63.023	5.403	22.9	6.72	2.291	360
	9	14	6.3	131.77	103	71.013	6.303	23.2	6.93	2.582	420
	9	16	6.3	143.41	113	78.282	7.203	23.5	7.10	2.868	480
	9	19	6.3	160.87	126	90.459	8.553	23.7	7.30	3.289	570
	12	16	8.4	159.57	125	82.356	7.207	22.8	6.74	2.994	480
	12	19	8.4	176.35	139	93.814	8.557	23.1	6.98	3.411	570
	12	22	8.4	194.13	152	105.007	9.907	23.3	7.16	3.814	660
12	25	8.4	211.41	166	115.937	11.257	23.4	7.32	4.215	750	
550 X 350	6	9	5.0	95.42	74.9	53.629	6.432	23.7	8.23	1.950	367
	6	12	5.0	116.06	91.1	68.069	8.575	24.2	8.61	2.475	490
	6	14	5.0	129.82	102	77.515	10.005	24.4	8.79	2.818	571
	9	12	6.3	132.13	104	71.708	8.578	23.3	8.08	2.607	490
	9	14	6.3	145.77	114	81.071	10.007	23.6	8.30	2.948	571
	9	16	6.3	159.41	125	90.291	11.436	23.8	8.49	3.283	653
	9	19	6.3	179.87	141	103.557	13.580	24.0	8.70	3.776	776
	9	22	7.0	200.52	157	117.110	15.723	24.2	8.87	4.258	898
	9	25	7.0	220.98	173	130.051	17.867	24.3	9.01	4.729	1.020
	12	16	8.4	175.57	138	93.766	11.440	23.1	8.10	3.409	653
	12	19	8.4	195.85	154	107.213	13.584	23.4	8.35	3.898	776
	12	22	8.4	216.13	170	120.349	15.728	23.6	8.55	4.376	898
	12	25	8.4	236.41	186	133.176	17.871	23.7	8.71	4.842	1.021
	16	25	11.2	257.50	202	137.343	17.881	23.2	8.37	4.994	1.021
	16	28	11.2	277.54	218	149.719	20.025	23.3	8.53	5.444	1.144
16	32	11.2	304.26	239	165.757	22.883	23.4	8.70	6.027	1.307	
550 X 400	9	16	6.3	175.41	138	101.701	17.069	24.1	9.88	3.698	947
	9	19	6.3	198.87	156	117.256	20.269	24.3	10.1	4.263	1.013



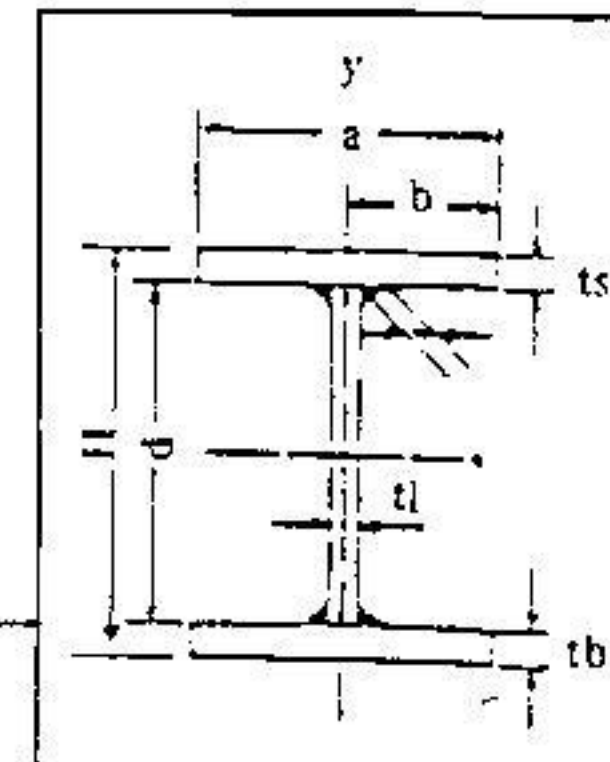
Ukuran Profil - H. mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
550 X 400	12	12	8.4	160.53	126	84.031	12.507	22.9	8.97	3.055	640
	12	16	8.4	191.57	150	105.175	17.674	23.5	9.47	3.824	853
	12	19	8.4	214.85	169	120.512	20.773	23.7	9.74	4.385	1.013
	12	22	8.4	238.13	187	135.691	23.473	23.9	9.95	4.934	1.173
	12	25	8.4	261.41	205	150.416	26.673	24.0	10.1	5.469	1.333
	16	18	11.2	236.42	185	125.086	20.284	23.1	9.21	4.548	1.014
	16	22	11.2	259.46	204	140.609	23.483	23.3	9.55	5.091	1.174
	16	25	11.2	282.50	222	164.582	26.683	23.4	9.76	5.621	1.334
	16	28	11.2	305.54	240	168.811	29.893	23.5	9.93	6.138	1.494
	16	32	11.2	336.26	264	187.251	34.149	23.6	10.1	6.809	1.707
600 X 200	6	9	5.0	71.42	56.1	41.294	1.201	24.1	4.11	1.376	120
	6	12	5.0	83.06	65.2	51.050	1.601	24.8	4.40	1.701	160
	6	16	5.5	98.68	77.5	63.745	2.134	25.4	4.66	2.124	213
	6	19	6.0	110.44	86.7	73.034	2.524	25.7	4.80	2.434	253
	9	12	6.3	100.63	79.0	55.327	1.603	23.6	4.00	1.860	160
	9	16	6.3	115.91	91.0	68.326	2.136	24.3	4.30	2.277	213
	9	19	6.3	127.37	100	77.472	2.535	24.7	4.47	2.582	253
	9	22	7.0	139.02	109	86.424	2.936	25.0	4.61	2.880	293
	12	16	8.4	133.57	105	72.307	2.141	23.4	4.02	2.430	214
	12	19	8.4	144.85	114	81.909	2.541	23.8	4.20	2.730	254
	12	22	8.4	156.13	123	90.721	2.941	24.2	4.35	3.024	294
	12	25	8.4	167.41	131	99.345	3.341	24.4	4.48	3.311	334
600 X 250	6	9	5.0	50.42	63.1	49.153	2.344	24.7	5.44	1.538	187
	6	12	5.0	95.06	74.6	61.423	3.126	25.4	5.74	2.047	250
	6	16	5.5	114.68	90.0	77.390	4.167	26.0	6.04	2.579	333
	6	19	6.0	129.44	102	89.074	4.948	26.3	6.20	2.969	395
	9	12	6.3	112.63	88.4	66.201	3.128	24.3	5.28	2.206	250
	9	16	6.3	131.91	104	81.971	4.170	25.0	5.63	2.732	333
	9	19	6.3	146.37	115	93.511	4.951	25.3	5.83	3.117	396
	9	22	7.0	161.02	126	104.808	5.732	25.5	5.98	3.493	458
	12	16	8.4	149.57	117	86.553	4.174	24.1	5.30	2.885	333
	12	19	8.4	163.85	129	97.949	4.955	24.5	5.52	3.264	396
	12	22	8.4	178.13	140	109.105	5.737	24.8	5.69	3.636	458
	12	25	8.4	192.41	151	120.022	6.518	25.0	5.84	4.000	521
600 X 300	6	9	5.0	89.42	70.2	57.013	4.051	25.3	6.74	1.900	270
	6	12	5.0	107.06	84.0	71.797	5.401	25.9	7.11	2.393	360
	6	16	5.5	130.68	103	91.036	7.201	26.4	7.43	3.034	480



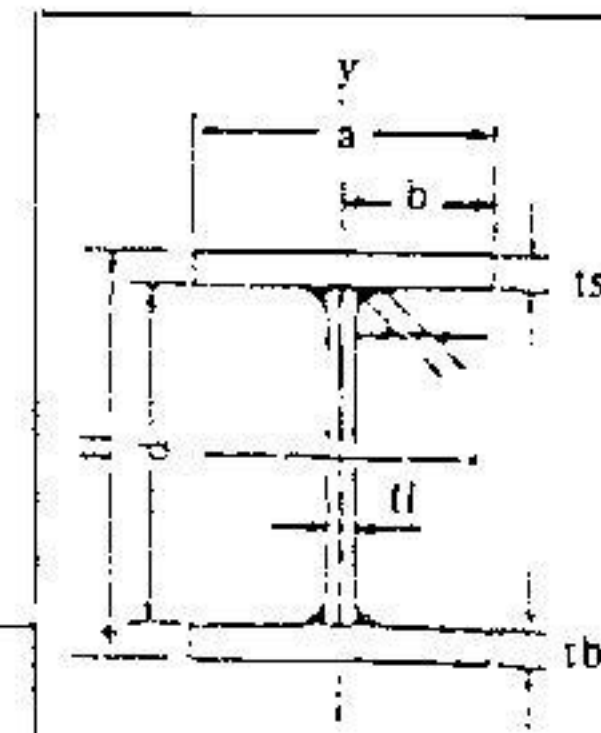
											
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-flange	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
600 X 300	6	19	6.0	146.44	117	105.114	8.551	26.6	7.60	3.503	570
	9	12	6.3	124.63	97.8	76.575	5.403	24.8	6.60	2.552	360
	9	16	6.3	147.91	116	95.617	7.203	25.4	6.99	3.187	480
	9	19	6.3	165.37	130	109.551	8.553	25.7	7.20	3.651	570
	9	22	7.0	183.02	144	123.191	9.903	26.0	7.37	4.106	660
	12	16	8.4	165.57	130	100.198	7.208	24.6	6.62	3.339	480
	12	19	8.4	182.85	144	113.989	8.558	25.0	6.86	3.799	570
	12	22	8.4	200.13	157	127.488	9.908	25.3	7.06	4.249	660
	12	25	8.4	217.41	171	140.699	11.257	25.6	7.21	4.689	750
600 X 350	6	9	5.0	98.42	77.3	64.872	6.432	25.7	8.10	2.162	367
	6	12	5.0	119.06	93.5	82.171	9.576	26.3	8.50	2.739	490
	6	16	5.5	146.68	115	104.681	11.434	26.7	8.84	3.489	653
	9	12	6.3	136.53	107	86.948	8.578	25.2	7.94	2.898	490
	9	16	6.3	163.91	129	109.253	11.436	25.8	8.37	3.642	653
	9	19	6.3	184.37	145	125.591	13.580	26.1	8.60	4.186	776
	9	22	7.0	205.02	161	141.575	15.724	26.3	8.77	4.719	898
	12	16	8.4	181.57	143	113.844	11.441	25.1	7.96	3.794	653
	12	19	8.4	201.85	158	130.029	13.585	25.4	8.23	4.334	776
	12	22	8.4	222.13	174	145.872	15.728	25.6	8.44	4.862	898
	12	25	8.4	242.41	190	161.376	17.872	25.8	8.61	5.379	1,021
600 X 400	6	9	5.0	107.42	84.3	72.732	9.601	26.0	9.47	2.424	480
	6	12	5.0	131.06	103	92.545	12.801	26.6	9.90	3.084	640
	6	16	5.5	162.68	128	118.327	17.067	27.0	10.2	3.944	853
	9	12	6.3	148.63	117	97.322	12.803	25.6	9.30	3.244	640
	9	16	6.3	179.91	141	122.908	17.070	26.1	9.76	4.096	853
	9	19	6.3	203.37	160	141.631	20.274	26.4	10.0	4.721	1,013
	9	22	7.0	227.02	178	169.958	23.469	26.6	10.1	5.331	1,173
	12	16	8.4	197.57	155	127.490	17.074	25.4	9.32	4.249	853
	12	19	8.4	220.95	173	146.068	20.274	25.7	9.61	4.868	1,013
	12	22	8.4	244.13	192	164.255	23.474	26.0	9.83	5.475	1,173
	12	25	8.4	267.41	210	182.053	26.674	26.1	10.0	6.068	1,333
650 X 200	6	9	5.0	74.42	58.4	49.603	1.201	25.8	4.02	1.525	120
	6	12	5.0	86.06	67.6	61.116	1.601	26.7	4.32	1.880	160
	6	16	5.5	101.68	79.8	76.128	2.134	27.4	4.59	2.342	213
	6	19	6.0	113.44	89.1	87.134	2.534	27.7	4.74	2.681	253
	9	12	6.3	105.13	82.5	67.249	1.603	25.3	3.91	2.069	160
	9	16	6.3	120.41	94.5	82.028	2.137	25.1	4.22	2.523	213
	9	19	6.3	131.87	104	92.864	2.537	26.6	4.39	2.857	253
	9	22	7.0	143.52	113	103.490	2.935	26.9	4.53	3.184	293
	12	16	8.4	139.57	110	87.929	2.142	25.2	3.93	2.705	214



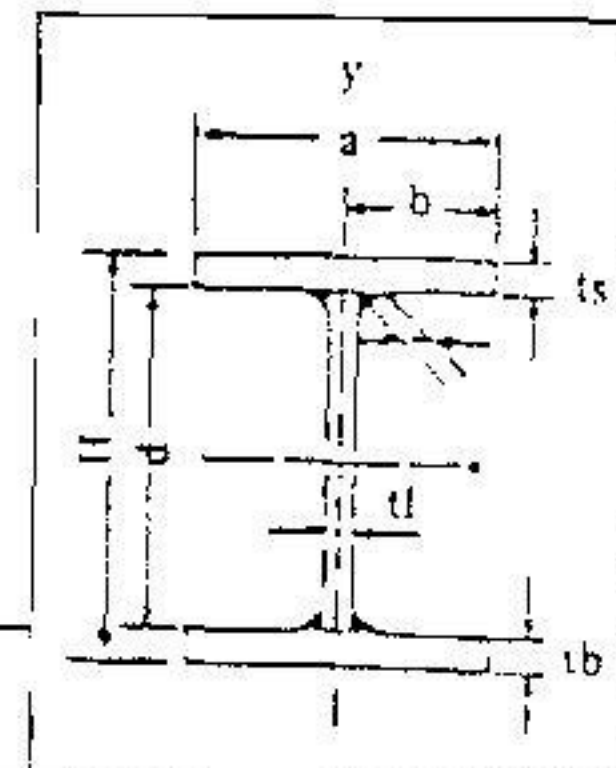
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Geras		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	I.L			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
650 X 200	12	19	8.4	150.85	118	98.595	2.342	25.6	4.12	3.033	254
	12	22	8.4	162.13	127	109.054	2.942	26.0	4.27	3.355	294
	12	25	8.4	173.41	136	119.308	3.341	26.3	4.40	3.671	334
	12	28	8.4	184.69	145	129.359	3.741	26.5	4.51	3.980	374
650 X 250	6	9	5.0	83.42	65.5	58.848	2.344	26.6	5.31	1.910	187
	6	12	5.0	98.06	77.0	73.329	3.126	27.4	5.55	2.256	250
	6	16	5.5	117.68	92.4	92.209	4.187	28.0	5.95	2.837	333
	6	19	6.0	132.44	104	106.052	4.949	28.3	6.12	3.263	395
	9	12	6.3	117.13	91.9	79.462	2.128	26.1	5.18	2.444	250
	9	16	6.3	136.41	107	98.110	4.170	26.5	5.54	3.018	332
	9	19	6.3	150.87	118	111.782	4.951	27.2	5.74	3.439	396
	9	22	7.0	165.52	130	125.190	5.732	27.5	5.90	3.852	458
	12	16	8.4	155.57	122	104.011	4.175	25.9	5.20	3.200	334
	12	19	8.4	169.85	133	117.513	4.956	26.4	5.42	3.615	396
	12	22	8.4	184.13	145	130.754	5.737	26.7	5.60	4.023	458
	12	25	8.4	198.41	156	143.725	6.519	27.0	5.75	4.422	521
	12	28	8.4	212.69	167	156.459	7.300	27.2	5.87	4.814	584
	12	32	8.4	231.73	182	173.029	8.341	27.4	6.01	5.322	657
650 X 300	6	9	5.0	92.42	72.5	66.094	4.051	27.2	5.83	2.095	270
	6	12	5.0	110.06	86.4	85.542	5.401	27.9	7.02	2.632	360
	6	16	5.5	133.68	105	108.291	7.201	28.5	7.35	3.332	480
	6	19	6.0	151.44	119	124.970	8.551	28.7	7.53	3.845	570
	9	12	6.3	129.13	101	91.674	5.403	26.7	6.48	2.820	360
	9	16	6.3	152.41	120	114.191	7.203	27.4	6.69	3.513	480
	9	19	6.3	169.87	133	130.701	8.553	27.7	7.11	4.021	570
	9	22	7.0	187.52	147	146.890	9.903	28.0	7.28	4.519	660
	12	16	8.4	171.57	135	120.092	7.208	26.5	6.50	3.695	480
	12	19	8.4	188.85	148	136.431	8.558	26.9	6.75	4.197	570
	12	22	8.4	206.13	162	152.454	9.909	27.2	6.95	4.690	660
	12	25	8.4	223.41	175	168.162	11.256	27.5	7.12	5.174	750
	12	28	8.4	240.69	189	183.559	12.608	27.6	7.25	5.647	840
	12	32	8.4	263.73	207	203.610	14.408	27.8	7.41	6.254	960
650 X 350	6	9	5.0	101.42	79.6	77.339	5.432	27.6	7.55	2.379	367
	6	12	5.0	122.06	95.8	97.754	6.576	28.3	8.39	3.007	490
	6	16	5.5	149.69	117	124.372	11.434	28.8	8.75	3.826	653
	9	12	6.3	141.13	111	103.887	8.578	27.2	7.51	3.196	490
	9	16	6.3	168.41	132	130.273	11.437	27.8	8.25	4.008	653
	9	19	6.3	188.87	148	149.619	13.560	28.2	8.49	4.603	775
	-	-	-	200.00	164	168.590	15.724	28.4	8.68	5.187	898
	12	16	8.4	187.57	147	136.174	11.410	27.0	7.53	4.189	653
	12	19	8.4	207.85	163	155.250	13.585	27.4	8.11	4.780	776



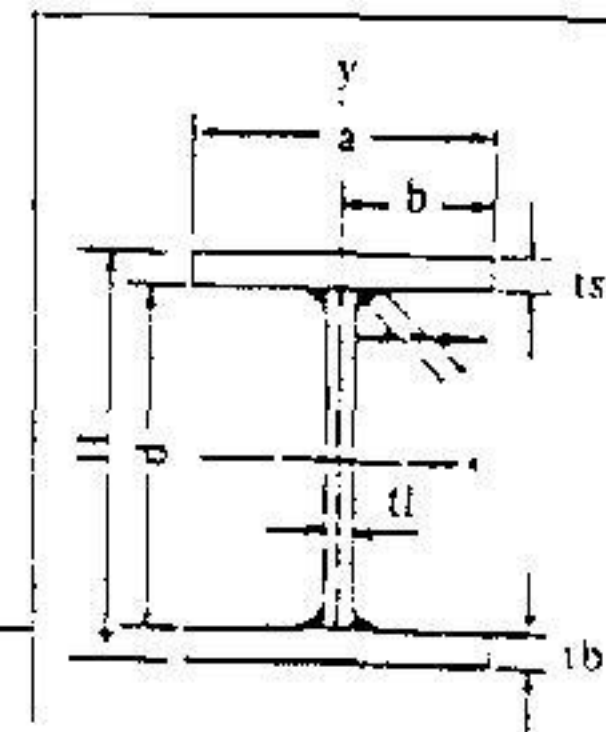
Ukuran Profil - H. mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
650 X 250	12	22	8.4	238.13	179	174.154	15.729	27.7	8.32	6.358	898
	12	25	8.4	248.41	185	182.539	17.373	27.9	8.50	6.825	1.021
	12	20	8.4	258.69	211	210.659	20.016	28.0	8.65	6.481	1.143
	12	32	8.4	295.73	230	234.191	22.975	28.2	8.81	7.005	1.307
650 X 400	6	9	5.0	110.42	86.7	86.534	9.601	28.0	9.34	2.564	460
	6	12	5.0	134.06	105	109.957	12.301	28.0	9.78	3.080	640
	6	16	5.5	166.68	130	140.454	17.067	28.1	10.1	4.021	855
	9	12	6.3	153.13	120	116.100	12.303	27.5	9.16	3.572	640
	9	16	6.3	184.41	145	146.355	17.070	28.2	9.64	4.503	855
	9	19	6.3	207.97	163	168.537	20.270	28.5	9.89	5.185	1.013
	9	22	7.0	231.52	182	190.290	22.470	28.7	10.0	5.855	1.172
	12	16	8.4	203.57	160	152.255	17.075	27.4	9.18	4.694	855
	12	19	8.4	226.65	178	174.258	20.275	27.7	9.48	5.362	1.013
	12	22	8.4	250.13	196	195.854	22.475	28.0	9.71	6.026	1.172
	12	25	8.4	273.41	215	217.016	25.675	28.2	9.90	6.677	1.333
	12	28	8.4	296.69	233	237.759	29.875	28.3	10.0	7.315	1.493
	12	32	8.4	327.73	257	264.772	34.141	28.4	10.2	8.146	1.707
700 X 200	6	9	5.0	77.42	60.6	66.836	1.201	27.5	3.95	1.681	120
	6	12	5.0	89.05	69.9	72.252	1.601	28.5	4.25	2.064	160
	6	16	5.5	104.68	82.2	89.774	2.134	29.3	4.52	2.564	213
	6	19	6.0	116.44	91.4	102.643	2.534	29.7	4.67	2.932	253
	9	12	6.3	109.63	86.1	79.975	1.604	27.1	3.83	2.295	160
	9	16	6.3	124.91	98.1	97.226	2.137	27.9	4.14	2.777	213
	9	19	6.3	136.37	107	109.896	2.537	28.4	4.32	3.129	253
	9	22	7.0	148.02	116	122.338	2.937	28.8	4.46	3.495	293
	9	25	7.0	159.48	125	134.554	3.337	29.1	4.58	3.844	333
	12	16	8.4	145.57	114	104.676	2.142	26.8	3.35	2.990	214
	12	19	8.4	156.35	123	117.148	2.542	27.4	4.04	3.347	254
	12	22	8.4	168.13	132	129.395	2.942	27.8	4.20	3.697	294
	12	25	8.4	179.41	141	141.420	3.342	28.1	4.33	4.040	334
	12	28	8.4	190.69	150	153.225	3.742	28.4	4.44	4.377	374
	12	32	8.4	205.73	161	168.626	4.275	28.7	4.57	4.817	427
700 X 250	6	9	5.0	85.42	67.8	69.550	2.344	28.4	5.22	1.998	187
	6	12	5.0	101.06	79.3	86.454	3.126	29.3	5.57	2.470	250
	6	16	5.5	120.68	94.7	108.492	4.167	30.0	5.88	3.099	333
	6	19	6.0	132.11	106	121.377	4.949	30.4	6.06	3.552	396
	9	12	6.3	121.63	95.5	94.177	3.129	27.9	5.00	2.690	250
	9	16	6.3	140.91	111	115.944	4.170	28.7	5.45	3.312	333



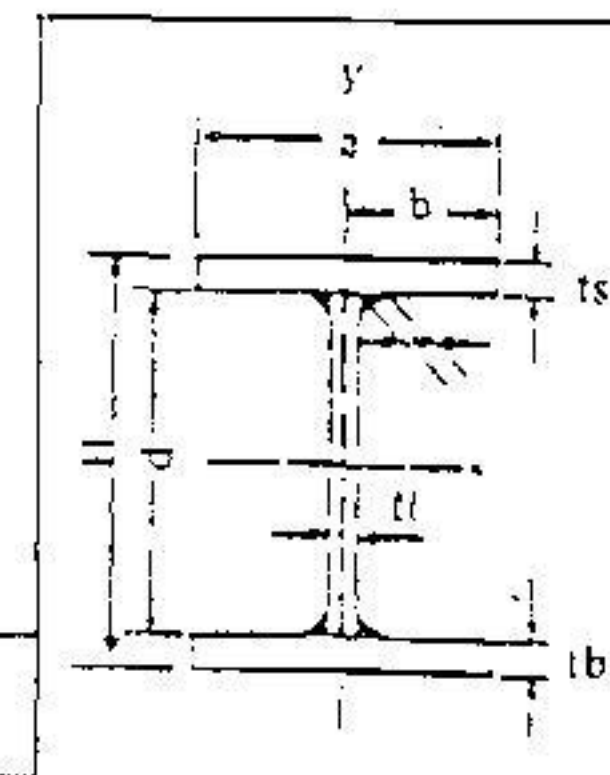
Ukuran Profil - H. mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
700 X 250	9	19	6.3	155.37	122	131.930	4.951	29.2	5.65	3.769	296
	9	22	7.0	170.02	133	147.629	5.733	29.5	5.82	4.217	455
	9	25	7.0	184.48	145	163.044	6.514	29.8	5.95	4.658	621
	12	16	8.4	161.57	127	123.395	4.176	27.7	5.10	3.525	334
	12	19	8.4	175.85	138	139.183	4.957	28.2	5.32	3.976	396
	12	22	8.4	190.13	149	154.687	5.738	28.6	5.51	4.419	459
	12	25	8.4	204.41	160	169.510	6.519	28.9	5.65	4.854	521
	12	28	8.4	218.59	172	184.854	7.300	29.1	5.79	5.291	584
	12	32	8.4	237.73	187	204.351	8.342	29.4	5.94	5.838	667
700 X 300	6	9	5.0	95.42	74.9	80.324	4.051	29.0	5.53	2.294	270
	6	12	5.0	113.06	89.8	100.656	5.401	29.9	6.22	2.875	360
	6	16	5.5	135.65	107	127.209	7.201	30.5	7.27	3.634	480
	6	19	6.0	154.44	121	146.711	8.551	30.8	7.45	4.191	570
	9	12	6.3	133.63	105	105.379	5.404	28.5	6.37	3.096	360
	9	16	6.3	156.91	123	134.661	7.204	29.3	6.79	3.947	480
	9	19	6.3	174.37	137	153.964	8.554	29.7	7.01	4.398	570
	9	22	7.0	192.02	151	172.921	9.903	30.0	7.19	4.940	660
	9	25	7.0	209.48	164	191.533	11.253	30.3	7.34	5.472	750
	12	16	8.4	177.57	139	142.113	7.209	28.3	6.39	4.060	480
	12	19	8.4	194.85	153	161.217	8.559	28.8	6.55	4.606	570
	12	22	8.4	212.13	167	179.978	9.909	29.2	6.85	5.142	660
	12	25	8.4	229.41	180	198.399	11.259	29.4	7.02	5.668	750
	12	28	8.4	246.69	194	216.463	12.609	29.7	7.16	6.185	840
	12	32	8.4	269.73	212	240.077	14.409	29.9	7.32	6.859	960
700 X 350	6	9	5.0	104.42	82.0	91.067	6.432	29.6	7.86	2.601	367
	6	12	5.0	125.06	98.2	114.857	8.576	30.3	8.29	3.281	490
	6	16	5.5	152.68	120	145.927	11.434	30.9	9.67	4.169	653
	6	19	6.0	173.44	136	168.746	12.578	31.2	9.86	4.821	775
	9	12	6.3	145.63	114	122.580	8.579	29.0	7.59	3.502	490
	9	16	6.3	172.91	136	153.379	11.437	29.8	8.15	4.332	653
	9	19	6.3	193.37	152	175.999	13.581	30.2	8.39	5.028	775
	9	22	7.0	214.02	168	198.212	15.724	30.4	8.59	5.663	898
	9	25	7.0	234.48	184	220.023	17.868	30.6	8.74	6.286	1.021
	12	16	8.4	193.57	152	160.831	11.442	28.9	7.71	4.595	653
	12	19	8.4	213.85	168	183.251	13.586	29.3	7.99	5.235	775
	12	22	8.4	234.13	184	205.270	15.730	29.6	8.22	5.864	898
	12	25	8.4	254.41	200	226.889	17.873	29.9	8.40	6.482	1.021
	12	28	8.4	274.69	216	248.113	20.017	30.1	8.55	7.038	1.143
	12	32	8.4	301.73	237	275.602	22.075	30.2	8.72	7.850	1.307



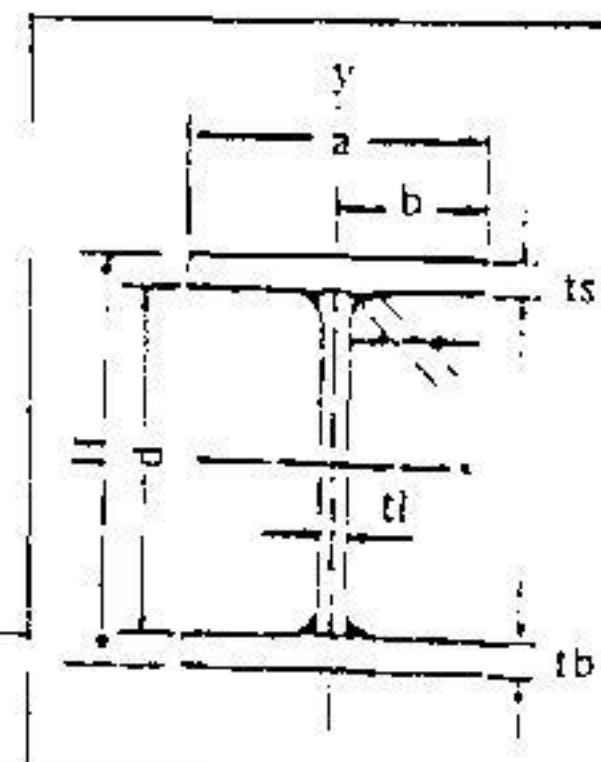
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
700 X 400	6	9	5.0	113.42	89.0	101.811	9.601	30.0	9.22	2.908	480
	6	12	5.0	137.06	108	129.059	12.901	30.7	9.68	3.637	640
	6	16	5.5	168.68	132	164.645	17.057	31.2	10.0	4.704	853
	6	19	6.0	192.44	151	190.780	20.257	31.5	10.2	5.450	1013
	9	12	6.3	157.63	124	136.782	12.904	29.5	9.03	3.908	640
	9	16	6.3	188.91	148	172.097	17.070	30.2	9.52	4.917	853
	9	19	6.3	212.37	167	198.033	20.270	30.5	9.78	5.658	1013
	9	22	7.0	236.02	185	222.504	23.470	30.8	9.99	6.385	1173
	9	25	7.0	259.48	204	248.512	26.570	31.0	10.1	7.100	1333
	12	16	8.4	209.57	165	179.549	17.075	29.0	9.05	5.129	853
	12	19	8.4	232.85	183	205.285	20.276	29.7	9.35	5.665	1013
	12	22	8.4	256.13	201	230.561	23.476	30.0	9.60	6.557	1173
	12	25	8.4	279.41	219	255.378	26.675	30.3	9.79	7.296	1333
	12	28	8.4	302.69	238	279.742	29.875	30.4	9.95	7.952	1493
	12	32	8.4	333.73	262	311.527	34.142	30.6	10.1	8.900	1707
750 X 200	6	9	5.0	90.42	63.1	69.030	1.201	29.3	3.87	1.940	120
	6	12	5.0	92.06	72.3	84.495	1.601	30.3	4.17	2.253	160
	6	16	5.5	107.68	84.5	104.701	2.134	31.2	4.46	2.742	210
	6	19	6.0	119.44	93.8	119.598	2.534	31.7	4.61	3.102	250
	9	12	6.3	114.13	89.6	94.062	1.604	28.7	3.76	2.503	160
	9	16	6.3	129.41	102	113.975	2.137	29.7	4.07	3.002	210
	9	19	6.3	140.87	111	128.622	2.537	30.2	4.25	3.429	250
	9	22	7.0	152.52	120	143.022	2.937	30.7	4.40	3.917	290
	9	25	7.0	163.98	129	157.103	3.337	31.0	4.52	4.491	330
	12	16	8.4	151.57	119	123.229	2.143	29.6	3.77	3.256	210
	12	19	8.4	162.85	128	137.645	2.543	29.1	3.96	3.610	250
	12	22	8.4	174.13	137	151.921	2.943	29.6	4.12	4.048	290
	12	25	8.4	185.41	146	165.758	3.343	30.0	4.26	4.420	330
	12	28	8.4	196.69	154	179.458	3.743	30.3	4.37	4.785	370
	12	32	8.4	211.73	166	197.359	4.276	30.6	4.50	5.262	427
750 X 250	6	9	5.0	89.42	70.2	91.395	2.345	30.2	5.13	2.170	187
	6	12	5.0	104.06	81.7	100.836	3.125	31.2	5.49	2.688	250
	6	16	5.5	123.68	97.1	126.275	4.167	32.0	5.81	3.367	330
	6	19	6.0	138.44	109	144.986	4.949	32.4	5.99	3.866	395
	9	12	6.3	126.13	99.0	110.403	3.129	29.6	4.99	2.944	250
	9	16	6.3	145.41	114	125.529	4.170	30.6	5.36	3.514	330
	9	19	6.3	159.87	125	154.009	4.952	31.1	5.57	4.106	395
	9	22	7.0	174.52	137	172.181	5.733	31.4	5.74	4.591	458
	9	25	7.0	188.98	148	190.047	6.514	31.7	5.88	5.067	521
	12	16	8.4	167.57	132	144.782	4.176	29.5	5.01	3.860	330
	12	19	8.4	181.85	143	163.033	4.958	30.0	5.24	4.347	395
	12	22	8.4	196.13	154	180.970	5.739	30.4	5.40	4.826	459
	12	25	8.4	210.41	165	198.622	6.520	30.8	5.58	5.296	521



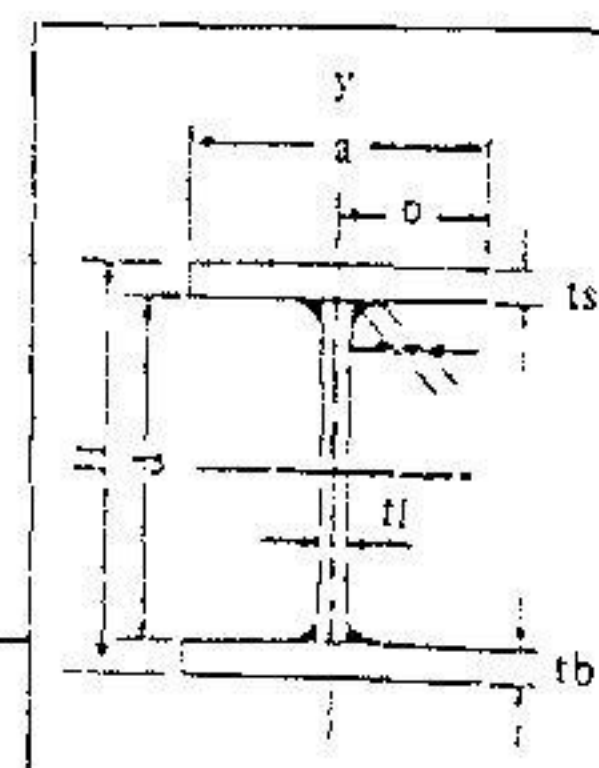
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-ayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
750 X 250	12	28	8.4	224.69	176	215,966	7,301	31.0	5.71	5.759	584
	12	32	8.4	243.73	191	238.628	9.343	31.3	5.86	6.363	657
750 X 300	6	9	5.0	98.42	77.3	93.740	4.051	30.9	6.43	2.499	270
	6	12	5.0	116.06	91.1	117.177	5.401	31.8	6.83	3.124	360
	6	16	5.5	129.68	110	147.829	7.201	32.6	7.19	3.942	460
	6	19	6.0	157.44	124	170.374	8.551	32.9	7.36	4.543	570
	9	12	6.3	138.13	108	126.743	5.404	30.3	6.27	3.379	360
	9	16	6.3	161.41	127	157.082	7.204	31.2	6.69	4.188	460
	9	19	6.3	178.87	140	179.397	8.554	31.7	6.93	4.783	570
	9	22	7.0	196.52	154	201.339	9.904	32.0	7.11	5.369	650
	9	25	7.0	213.98	168	222.912	11.254	32.3	7.28	5.944	750
	12	16	8.4	183.57	144	166.336	7.210	30.2	6.29	4.435	460
	12	19	8.4	200.85	158	188.421	8.560	30.7	6.55	5.024	570
	12	22	8.4	218.13	171	210.137	9.910	31.1	6.76	5.603	660
	12	25	8.4	235.41	185	231.487	11.260	31.4	6.93	6.172	750
	12	28	8.4	252.69	198	252.474	12.609	31.6	7.08	6.732	840
	12	32	8.4	275.73	216	279.898	14.409	31.9	7.24	7.463	960
750 X 350	6	9	5.0	107.42	84.3	106.095	6.432	31.4	7.75	2.829	357
	6	12	5.0	128.06	101	123.518	8.576	32.3	8.19	3.560	400
	6	16	5.5	155.68	122	169.382	11.434	33.0	8.58	4.516	553
	6	19	6.0	176.44	139	195.761	13.578	33.3	8.78	5.220	776
	9	12	6.3	150.13	119	143.084	5.579	30.9	7.57	3.815	490
	9	16	6.3	177.41	139	178.636	11.437	31.7	8.04	4.763	653
	9	19	6.3	197.87	155	204.785	13.581	32.2	8.30	5.460	770
	9	22	7.0	218.52	172	230.497	15.725	32.5	8.50	6.146	898
	9	25	7.0	238.98	188	255.776	17.868	32.7	8.66	6.920	1.021
	12	16	8.4	199.57	157	187.890	11.443	30.7	7.59	5.010	653
	12	19	8.4	219.85	173	213.809	13.587	31.2	7.88	5.701	776
	12	22	8.4	240.13	189	239.295	15.730	31.6	8.11	6.381	898
	12	25	8.4	260.41	204	264.351	17.874	31.9	8.30	7.049	1.021
	12	28	8.4	280.69	220	289.962	20.018	32.1	8.46	7.706	1.143
	12	32	8.4	307.73	242	321.167	22.876	32.3	8.64	8.564	1.307
750 X 400	6	9	5.0	116.42	91.4	118.450	9.601	31.9	9.10	3.158	480
	6	12	5.0	140.06	110	149.858	12.801	32.7	9.57	3.996	640
	6	16	5.5	171.68	135	190.936	17.067	33.4	9.98	5.091	853
	6	19	6.0	195.44	153	221.149	20.267	33.6	10.1	5.897	1.013
	9	12	6.3	162.13	127	159.425	12.904	31.4	8.90	4.251	640
	9	16	6.3	193.41	152	200.190	17.070	32.2	9.41	5.338	853
	9	19	6.3	216.87	170	230.173	20.270	32.6	9.68	6.137	1.013



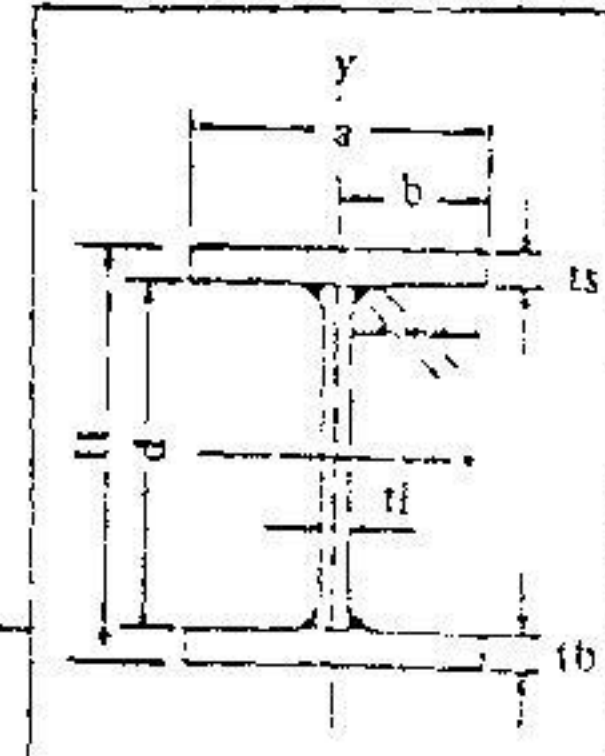
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-bayangan	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
750 X 400	9	22	7.0	240.52	189	259.655	23.470	32.9	9.89	6.924	1.173
	9	25	7.0	263.98	207	289.641	26.670	33.1	10.0	7.697	1.303
	12	16	8.4	215.57	169	209.443	17.076	31.2	8.92	5.585	0.953
	12	19	8.4	238.85	187	239.196	20.276	31.7	9.24	6.378	1.013
	12	22	8.4	262.13	206	268.453	23.475	32.0	9.48	7.158	1.173
	12	25	8.4	285.41	224	297.216	26.676	32.3	9.69	7.925	1.303
	12	28	8.4	308.69	242	325.490	29.876	32.5	9.85	8.679	1.483
	12	32	8.4	339.73	267	362.436	34.143	32.7	10.0	9.664	1.707
800 X 200	6	9	5.0	83.42	65.5	80.224	1.701	31.1	3.80	2.005	120
	6	12	5.0	95.06	74.6	97.883	1.801	32.1	4.11	2.447	160
	6	16	5.5	110.68	86.9	121.007	2.134	33.1	4.40	3.025	213
	6	19	6.0	122.44	96.1	138.037	2.534	33.6	4.55	3.450	253
	9	12	6.3	118.63	93.1	109.565	1.604	30.4	3.68	2.739	160
	9	16	6.3	133.91	105	132.332	2.137	31.5	4.00	3.308	213
	9	19	6.3	145.37	114	149.099	2.537	32.1	4.18	3.727	253
	9	22	7.0	157.02	123	165.503	2.937	32.5	4.33	4.140	293
	9	25	7.0	168.48	132	181.848	3.337	32.9	4.46	4.546	333
	12	16	8.4	157.57	124	143.657	2.144	30.3	3.70	3.591	214
	12	19	8.4	168.85	133	160.160	2.544	30.9	3.89	4.004	254
	12	22	8.4	180.13	141	176.405	2.944	31.4	4.05	4.410	294
	12	25	8.4	191.41	150	192.395	3.344	31.8	4.19	4.809	334
	12	28	8.4	202.69	159	208.131	3.744	32.1	4.31	5.203	374
	12	32	8.4	217.73	171	223.721	4.277	32.5	4.44	5.718	427
	16	25	11.2	222.50	175	206.456	3.056	30.6	3.90	5.161	335
	16	28	11.2	233.54	183	221.859	3.758	30.9	4.03	5.546	375
	16	32	11.2	248.26	195	242.011	4.291	31.3	4.17	6.050	429
	16	38	11.2	270.34	212	271.423	5.091	31.8	4.35	6.785	503
800 X 250	6	9	5.0	92.42	72.5	94.302	2.345	32.0	5.05	2.357	187
	6	12	5.0	107.06	84.0	116.513	3.126	33.0	5.41	2.912	250
	6	16	5.5	126.68	99.4	145.537	4.167	33.9	5.74	3.639	303
	6	19	6.0	141.44	111	167.016	4.949	34.4	5.92	4.175	385
	9	12	6.3	130.63	103	128.195	3.129	31.4	4.90	3.204	250
	9	16	6.3	149.91	118	156.922	4.171	32.4	5.28	3.923	333
	9	19	6.3	164.37	129	178.077	4.952	32.9	5.50	4.451	386
	9	22	7.0	179.02	141	198.903	5.733	33.4	5.67	4.972	458
	9	25	7.0	193.48	152	219.400	6.514	33.7	5.81	5.485	521
	12	16	8.4	173.57	136	168.246	4.177	31.2	4.92	4.206	334
	12	19	8.4	187.85	147	189.139	4.958	31.8	5.15	4.728	396
	12	22	8.4	202.13	159	209.705	5.739	32.3	5.34	5.242	459
	12	25	8.4	216.41	170	229.947	6.521	32.6	5.50	5.748	521
	12	28	8.4	230.69	181	249.963	7.302	33.0	5.64	6.246	584
	12	32	8.4	249.73	196	275.934	8.343	33.3	5.79	6.898	667
	16	25	11.2	247.50	194	244.010	6.536	31.5	5.16	6.100	522
	16	28	11.2	261.54	205	269.550	7.317	31.9	5.31	6.589	585
	16	32	11.2	280.26	220	289.224	8.353	32.2	5.48	7.230	668
	16	38	11.2	308.34	242	326.534	9.920	32.6	5.69	8.165	793



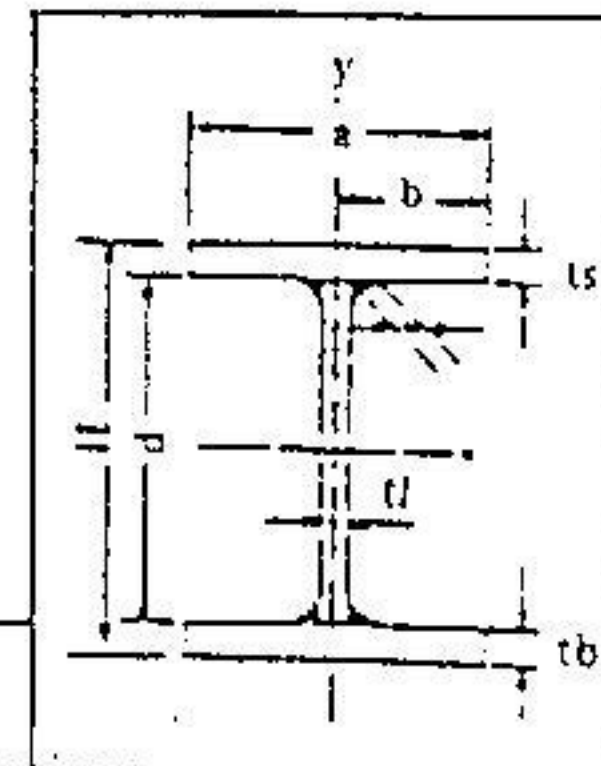
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
800 X 300	6	9	5.0	101.42	79.6	108.380	4.051	32.7	6.33	2.709	270
	6	12	5.0	119.06	93.5	135.142	5.401	33.7	6.74	3.378	360
	6	16	5.5	142.68	112	170.187	7.201	34.6	7.11	4.254	480
	6	19	6.0	160.44	126	195.995	8.551	35.0	7.31	4.899	570
	9	12	6.3	142.63	112	146.823	5.404	32.1	6.17	3.670	360
	9	16	6.3	165.91	130	181.511	7.204	33.1	6.60	4.537	480
	9	19	6.3	183.37	144	207.066	8.554	33.6	6.84	5.176	570
	9	22	7.0	201.02	158	232.202	9.904	34.0	7.03	5.905	660
	9	25	7.0	218.48	172	256.952	11.254	34.3	7.19	6.423	750
	12	16	8.4	189.57	149	192.636	7.211	32.0	6.18	4.020	480
	12	19	8.4	206.85	162	218.117	8.560	32.6	6.45	4.452	570
	12	22	8.4	224.13	176	243.004	9.910	33.0	6.66	5.075	660
	12	25	8.4	241.41	190	267.499	11.260	33.3	6.84	5.687	750
	12	28	8.4	258.69	203	291.606	12.610	33.6	7.00	6.290	840
	12	32	8.4	281.73	221	323.148	14.410	33.9	7.16	7.076	960
	16	25	11.2	272.50	214	281.562	11.275	32.2	6.46	7.039	750
	16	28	11.2	289.54	227	305.335	12.625	32.6	6.63	7.633	840
	16	32	11.2	312.26	245	336.437	14.425	32.9	6.82	8.410	960
	16	38	11.2	345.34	272	381.841	17.124	33.3	7.05	9.546	1.140
800 X 350	6	9	5.0	110.42	86.7	122.459	6.432	33.3	7.64	3.061	367
	6	12	5.0	131.06	103	153.772	8.576	34.3	8.10	3.844	490
	6	16	5.5	158.68	125	194.776	11.434	35.1	8.50	4.869	653
	6	19	6.0	179.44	141	224.974	13.578	35.4	8.71	5.624	775
	9	12	6.3	154.63	121	165.454	6.579	32.7	7.46	4.136	490
	9	16	6.3	181.91	143	206.101	11.437	33.7	7.94	5.152	653
	9	19	6.3	202.37	159	236.035	13.581	34.2	8.20	5.900	776
	9	22	7.0	223.02	175	265.502	15.725	34.6	8.41	6.637	898
	9	25	7.0	243.48	191	294.504	17.869	34.8	8.58	7.362	1.021
	12	16	8.4	205.57	161	217.425	11.444	32.6	7.46	5.435	653
	12	19	8.4	225.85	177	247.096	13.587	33	7.77	6.177	776
	12	22	8.4	246.13	193	276.304	15.731	33.6	8.01	6.907	898
	12	25	8.4	266.41	209	305.051	17.875	33.9	8.21	7.626	1.021
	12	28	8.4	286.69	225	333.343	20.019	34.1	8.37	8.333	1.143
	12	32	8.4	313.73	246	370.361	22.877	34.4	8.55	9.259	1.307
	16	25	11.2	297.50	234	319.114	17.890	32.8	7.78	7.977	1.022
	16	28	11.2	317.54	249	347.070	20.033	33.1	7.97	8.676	1.144
	16	32	11.2	344.26	270	383.650	22.891	33.4	8.16	9.591	1.308
	16	38	11.2	384.34	302	437.048	27.178	33.9	8.43	10.926	1.553
800 X 400	6	9	5.0	119.42	93.7	136.537	9.601	33.8	8.98	3.413	480
	6	12	5.0	143.06	112	172.402	12.901	34.7	9.47	4.310	640
	6	16	5.5	174.68	137	219.366	17.067	35.4	9.90	5.484	853
	6	19	6.0	198.44	156	253.952	20.257	35.8	10.1	6.348	1.013
	9	12	6.3	166.67	131	184.084	12.804	33.3	8.78	4.602	640
	9	16	6.3	197.91	155	230.691	17.071	34.2	9.00	5.767	853
	9	19	6.3	221.37	174	265.014	20.271	34.6	9.58	6.625	1.013



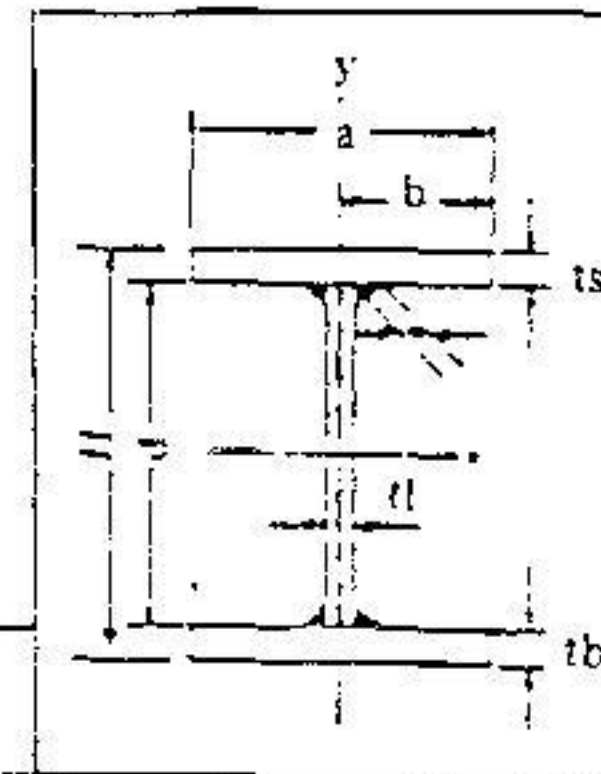
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Centroid		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
800 X 400	9	22	7.0	312.32	102	295.801	23.471	34.9	3.53	7.473	1.173
	9	25	7.0	258.43	211	332.056	26.671	35.1	3.53	8.301	1.333
	12	16	8.4	221.57	174	242.015	17.077	33.1	3.90	6.050	853
	12	19	8.4	244.85	192	276.075	20.277	33.6	3.12	6.901	1.013
	12	22	8.4	268.13	210	309.602	23.477	34.0	3.03	7.740	1.173
	12	25	8.4	291.41	229	342.623	26.677	34.3	3.53	8.565	1.333
	12	28	8.4	314.69	247	375.080	29.877	34.5	3.76	9.377	1.493
	12	32	8.4	345.73	271	417.574	34.143	34.8	3.95	10.439	1.707
	16	25	11.2	322.50	253	356.666	26.692	33.3	3.13	8.916	1.334
	16	28	11.2	345.54	271	388.807	29.891	33.6	3.23	9.720	1.494
	16	32	11.2	376.26	295	430.864	34.158	33.9	3.25	10.771	1.707
	16	38	11.2	422.34	332	492.356	40.558	34.2	3.32	12.306	2.027
800 X 450	6	9	5.0	128.42	101	150.616	13.670	34.3	10.3	3.765	607
	6	12	5.0	155.06	122	191.032	18.226	35.1	10.3	4.775	810
	6	16	5.5	190.68	150	243.956	24.301	35.3	11.2	6.098	1.080
	6	19	6.0	217.44	171	282.931	28.857	36.1	11.5	7.073	1.282
	9	12	6.3	178.63	140	202.714	18.229	33.7	10.1	5.067	810
	9	16	6.3	212.91	168	255.280	24.304	34.6	10.6	6.382	1.080
	9	19	6.3	240.37	189	293.993	28.860	35.0	10.9	7.349	1.282
	9	22	7.0	267.02	210	332.101	33.417	35.3	11.1	8.302	1.485
	9	25	7.0	293.48	230	369.608	37.973	35.5	11.2	9.240	1.687
	12	16	8.4	227.57	186	266.605	24.311	33.5	10.1	6.665	1.080
	12	19	8.4	263.95	207	305.054	28.867	34.0	10.4	7.626	1.282
	12	22	8.4	290.13	228	342.903	33.423	34.4	10.7	8.572	1.485
	12	25	8.4	316.41	248	380.155	37.979	34.7	10.9	9.503	1.637
	12	28	8.4	342.69	269	416.817	42.535	34.9	11.1	10.420	1.890
	12	32	8.4	377.73	297	464.787	48.610	35.1	11.3	11.619	2.160
	16	25	11.2	347.50	273	394.218	37.994	33.7	10.4	9.855	1.688
	16	28	11.2	373.54	293	430.545	42.550	34.0	10.6	10.763	1.891
	16	32	11.2	408.26	320	478.077	48.625	34.2	10.9	11.951	2.161
	16	38	11.2	460.34	361	547.462	57.737	34.5	11.2	13.636	2.566
850 X 200	6	9	5.0	86.42	67.8	92.454	1.201	32.7	3.73	2.175	120
	6	12	5.0	98.06	77.0	112.452	1.601	33.9	4.05	2.645	160
	6	16	5.5	113.68	89.2	138.669	2.134	35.0	4.34	3.262	213
	6	19	6.0	125.44	98.5	157.998	2.534	35.5	4.50	3.717	253
	9	12	6.3	123.13	96.7	126.541	1.605	32.1	3.62	2.977	160
	9	16	6.3	138.41	109	152.353	2.129	33.2	3.94	3.584	213
	9	19	6.3	149.37	118	171.383	2.538	33.8	4.12	4.032	253
	9	22	7.0	161.52	127	190.134	2.938	34.4	4.27	4.473	293
	9	25	7.0	172.98	136	208.608	3.338	34.8	4.40	4.908	333
	12	16	8.4	163.57	128	166.036	2.145	31.9	3.63	3.906	214
	12	19	8.4	174.85	137	184.767	2.544	32.6	3.82	4.347	254
	12	22	8.4	186.13	146	203.224	2.944	33.1	3.99	4.781	294
	12	25	8.4	197.41	155	221.402	3.344	33.6	4.13	5.209	334
	12	28	8.4	208.69	164	239.321	3.744	33.9	4.24	5.631	374



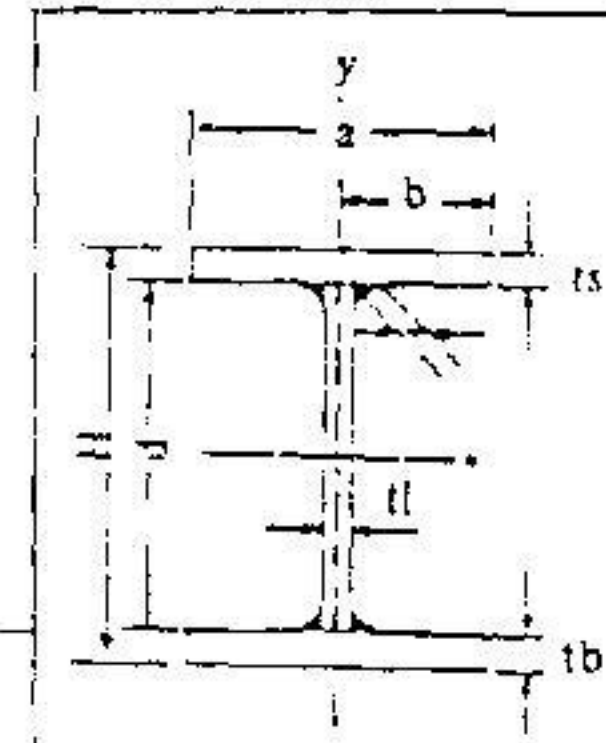
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-tangan	t-sayap	LL			ix	iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
850 X 200	12	32	8.4	223.73	176	262.787	4.277	34.3	4.38	6.153	427
	16	25	11.2	230.50	181	238.474	3.350	32.3	3.83	5.611	336
	16	28	11.2	241.54	190	256.006	3.750	32.7	3.96	6.023	376
	16	32	11.2	256.26	201	278.973	4.293	33.1	4.11	6.564	429
	16	38	11.2	278.34	218	312.558	5.093	33.6	4.29	7.354	509
850 X 250	6	9	5.0	95.42	74.9	109.368	2.345	23.7	4.96	2.649	187
	6	12	5.0	110.06	86.4	133.521	3.126	24.8	5.34	3.141	250
	6	16	5.5	129.68	102	166.495	4.168	25.9	5.68	3.911	333
	6	19	6.0	144.44	113	190.205	4.949	26.4	5.86	4.489	395
	9	12	6.3	135.13	106	147.610	3.130	23.1	4.82	3.472	250
	9	16	6.3	154.41	121	180.178	4.171	24.2	5.21	4.239	333
	9	19	6.3	168.87	133	204.190	4.952	24.8	5.42	4.804	395
	9	22	7.0	183.52	144	227.850	5.723	25.3	5.60	5.351	458
	9	25	7.0	197.98	155	251.160	6.515	25.6	5.75	5.909	521
	12	16	8.4	179.57	141	193.852	4.178	22.9	4.84	4.551	334
	12	19	8.4	193.85	152	217.575	4.959	23.6	5.07	5.119	396
	12	22	8.4	208.13	163	240.940	5.740	24.1	5.26	5.659	459
	12	25	8.4	222.41	175	263.860	6.521	24.5	5.43	6.210	521
	12	28	8.4	236.69	186	286.637	7.303	24.8	5.56	6.744	584
	12	32	8.4	255.73	201	316.344	8.344	25.2	5.72	7.440	667
	16	25	11.2	255.50	201	291.026	6.537	23.3	5.08	6.612	522
	16	28	11.2	269.54	212	303.322	7.318	23.6	5.23	7.126	585
	16	32	11.2	288.26	226	332.531	8.360	24.1	5.40	7.824	658
	16	38	11.2	316.34	248	375.241	9.922	24.5	5.62	8.629	793
850 X 300	6	9	5.0	104.42	82.0	124.282	4.051	24.5	6.24	2.924	270
	6	12	5.0	122.06	95.8	154.590	5.401	25.6	6.66	3.577	360
	6	16	5.5	145.68	114	194.320	7.201	26.5	7.04	4.572	480
	6	19	6.0	163.44	128	223.613	8.551	27.0	7.24	5.261	570
	9	12	6.3	147.13	115	168.679	5.405	23.9	6.07	3.968	360
	9	16	6.3	170.41	134	208.004	7.204	25.0	6.51	4.994	480
	9	19	6.3	187.87	147	236.997	8.554	25.5	6.76	5.578	570
	9	22	7.0	205.52	161	265.566	9.904	26.0	6.95	6.248	660
	9	25	7.0	222.98	175	293.712	11.254	26.3	7.11	6.910	750
	12	16	8.4	195.57	154	221.658	7.211	23.7	6.09	5.216	480
	12	19	8.4	212.85	167	250.382	8.561	24.4	6.36	5.891	570
	12	22	8.4	230.13	181	278.656	9.911	24.8	6.56	6.556	660
	12	25	8.4	247.41	194	306.512	11.261	25.2	6.76	7.212	750
	12	28	8.4	264.69	208	333.953	12.611	25.6	6.92	7.857	840
	12	32	8.4	287.73	225	369.901	14.411	25.9	7.09	8.703	960
	16	25	11.2	280.50	220	323.578	11.277	24.1	6.36	7.613	751
	16	28	11.2	297.54	234	350.639	12.627	24.4	6.54	8.250	841
	16	32	11.2	322.55	251	395.099	14.426	24.6	6.73	9.084	961
	16	38	11.2	354.34	278	437.925	17.126	25.2	6.97	10.204	1141



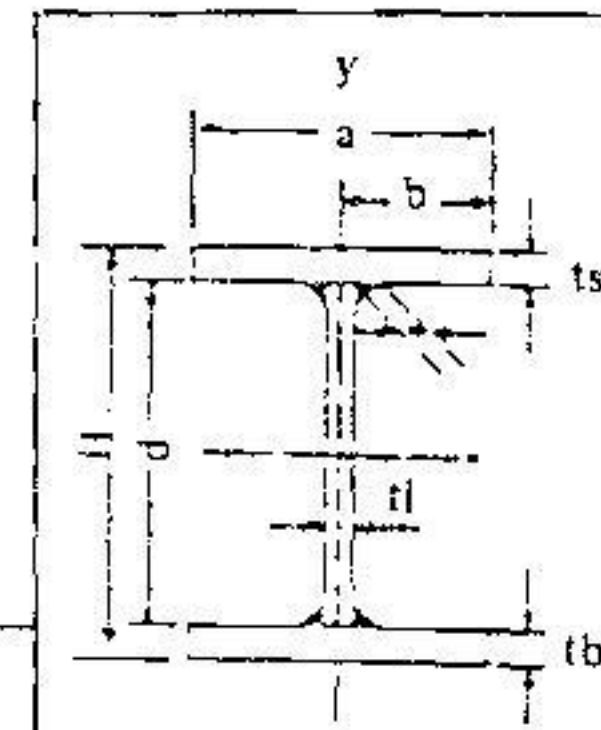
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	I.L			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
850 X 350	6	9	5.0	113.42	89.0	140.197	6.432	35.2	7.54	3.298	367
	6	12	5.0	134.06	105	175.659	8.576	36.2	8.01	4.133	490
	6	16	5.5	161.68	127	222.146	11.434	37.1	8.42	5.226	653
	6	19	6.0	182.44	143	256.420	13.578	37.5	8.64	6.033	775
	9	12	6.3	159.13	125	189.748	8.560	34.6	7.36	4.464	490
	9	16	6.3	186.41	146	225.830	11.438	35.6	7.84	5.548	653
	9	19	6.3	206.87	162	269.805	13.581	36.1	8.11	6.348	776
	9	22	7.0	227.52	179	303.282	15.725	36.5	8.33	7.136	898
	9	25	7.0	247.98	195	336.264	17.869	36.8	8.50	7.912	1.021
	12	16	8.4	211.57	166	249.513	11.445	34.4	7.37	5.870	654
	12	19	8.4	231.85	182	283.189	13.588	35.0	7.67	6.663	776
	12	22	8.4	252.13	198	316.372	15.732	35.5	7.92	7.444	898
	12	25	8.4	272.41	214	349.064	17.876	35.8	8.12	8.213	1.021
	12	28	8.4	292.69	230	381.269	20.019	36.1	8.28	8.971	1.143
	12	32	8.4	319.73	251	423.459	22.877	36.4	8.47	9.963	1.307
	16	25	11.2	305.50	240	366.130	17.991	34.7	7.68	8.614	1.022
	16	28	11.2	325.54	256	397.955	20.035	35.0	7.87	9.363	1.144
	16	32	11.2	352.26	277	439.645	22.893	35.4	8.08	10.344	1.308
	16	38	11.2	392.34	308	500.608	27.180	35.8	8.34	11.779	1.553
850 X 400	6	9	5.0	122.42	96	156.111	9.601	35.7	8.87	3.673	480
	6	12	5.0	146.06	115	196.727	12.801	36.7	9.37	4.628	640
	6	16	5.5	177.68	139	249.972	17.068	37.5	9.81	5.881	853
	6	19	6.3	201.51	158	289.227	20.268	37.9	10.0	6.805	1.013
	9	12	6.3	171.13	134	210.816	12.905	35.1	8.55	4.960	540
	9	16	6.3	202.41	159	263.655	17.071	36.1	9.20	6.203	853
	9	19	6.3	225.87	177	302.612	20.271	36.6	9.48	7.120	1.013
	9	22	7.0	249.52	196	340.998	23.471	37.0	9.71	8.023	1.173
	9	25	7.0	272.98	214	378.816	26.671	37.3	9.90	8.913	1.333
	12	16	8.4	227.57	179	277.339	17.078	35.0	8.68	6.525	853
	12	19	8.4	250.85	197	315.997	20.278	35.5	9.01	7.435	1.013
	12	22	8.4	274.13	215	354.088	23.478	35.0	9.27	8.331	1.173
	12	25	8.4	297.41	233	391.516	26.678	36.3	9.49	9.214	1.333
	12	28	8.4	320.69	252	428.585	29.878	36.6	9.67	10.084	1.493
	12	32	8.4	351.73	276	477.016	34.144	36.8	9.87	11.223	1.707
	16	25	11.2	330.50	259	408.682	26.693	35.2	9.02	9.616	1.334
	16	28	11.2	353.54	278	445.271	29.893	35.6	9.22	10.476	1.494
	16	32	11.2	384.26	302	493.202	34.160	35.9	9.45	11.604	1.708
	16	36	11.2	414.98	326	540.168	38.426	36.1	9.65	12.709	1.921
	16	38	11.2	430.34	338	563.291	40.559	36.2	9.73	13.253	2.027
850 X 450	6	9	5.0	131.42	103	172.026	13.670	36.2	10.2	4.047	507
	6	12	5.0	158.06	124	217.796	18.226	37.1	10.7	5.124	810
	6	16	5.5	193.68	152	277.797	24.301	37.9	11.2	6.536	1.080
	6	19	6.0	222.44	173	322.035	28.857	38.2	11.4	7.577	1.282
	9	12	6.3	183.13	144	231.885	18.220	35.6	9.99	5.456	810
	9	16	6.3	218.41	171	291.481	24.304	36.5	10.5	6.858	1.080



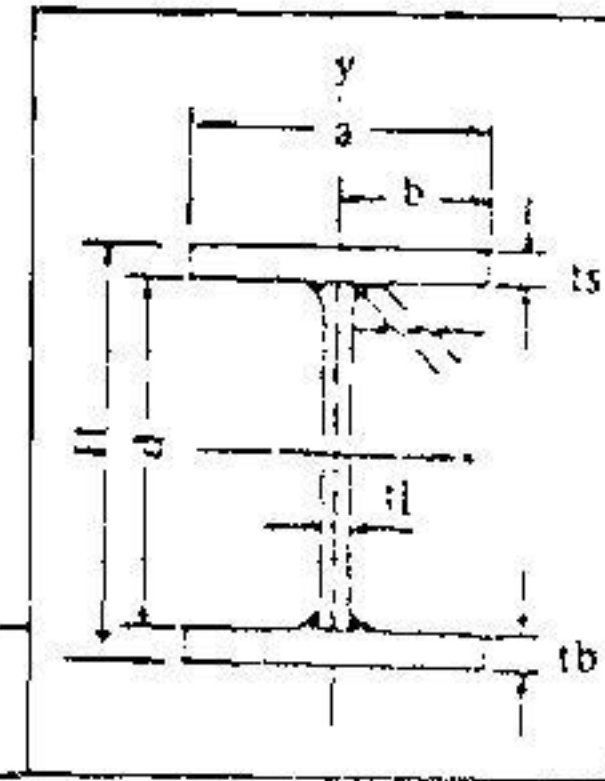
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
850 X 450	9	19	6.3	244.87	192	335.419	28.861	37.0	10.8	7.692	1.232
	9	22	7.0	271.52	213	378.714	33.417	37.4	11.1	8.910	1.493
	9	25	7.0	297.98	234	421.368	37.973	37.8	11.2	9.914	1.687
	12	16	8.4	243.57	191	305.185	24.311	35.4	10.0	7.180	1.080
	12	19	8.4	269.85	212	348.804	28.867	36.0	10.3	8.207	1.282
	12	22	8.4	296.13	232	391.304	33.424	36.4	10.6	9.219	1.485
	12	25	8.4	322.41	253	434.188	37.980	36.7	10.8	10.215	1.688
	12	28	8.4	348.59	274	476.902	42.536	37.0	11.0	11.197	1.890
	12	32	8.4	383.73	301	530.573	48.611	37.2	11.2	12.484	2.150
	16	25	11.2	355.50	279	451.234	37.996	35.7	10.3	10.617	1.688
	16	28	11.2	381.54	300	492.587	42.552	36.0	10.5	11.590	1.891
	16	32	11.2	416.26	327	545.760	48.626	36.3	10.8	12.564	2.151
	16	36	11.2	450.98	354	599.840	54.701	36.5	11.0	14.113	2.431
	16	38	11.2	468.34	368	625.975	57.738	36.8	11.1	14.728	2.565
900 X 200	6	9	5.0	89.42	70.2	105.758	1.201	34.4	3.67	2.350	120
	6	12	5.0	101.06	79.3	128.242	1.601	35.7	3.98	2.949	150
	6	16	5.5	116.68	91.6	157.745	2.134	36.8	4.28	3.505	213
	6	19	6.0	128.44	101	179.518	2.534	37.4	4.45	3.989	253
	9	12	6.3	127.63	100	145.047	1.605	33.9	3.55	3.223	160
	9	16	6.3	142.91	112	174.094	2.138	34.9	3.87	3.868	213
	9	19	6.3	154.37	121	195.530	2.538	35.6	4.06	4.345	253
	9	22	7.0	166.02	130	216.671	2.938	36.2	4.21	4.814	293
	9	25	7.0	177.48	139	237.517	3.339	36.6	4.34	5.278	333
	12	16	8.4	169.57	133	190.443	2.145	33.6	3.56	4.232	214
	12	19	8.4	180.85	142	211.543	2.545	34.3	3.76	4.700	254
	12	22	8.4	192.13	151	232.352	2.945	34.8	3.92	5.163	294
	12	25	8.4	203.41	160	252.870	3.345	35.3	4.06	5.619	334
	12	28	8.4	214.69	169	273.101	3.745	35.7	4.18	6.068	374
	12	32	8.4	229.73	180	299.632	4.278	36.2	4.32	6.658	427
	16	25	11.2	238.50	187	273.341	3.362	34.0	3.77	6.074	336
	16	28	11.2	249.54	196	293.142	3.762	34.4	3.90	6.514	376
	16	32	11.2	264.26	207	319.108	4.295	34.9	4.04	7.091	429
	16	36	11.2	278.98	219	344.582	4.828	35.2	4.17	7.657	482
	16	38	11.2	286.34	225	357.136	5.094	35.4	4.23	7.936	509
900 X 250	6	9	5.0	98.42	77.3	123.620	2.345	35.5	4.89	2.747	187
	6	12	5.0	113.06	88.8	151.899	3.126	36.7	5.26	3.375	250
	6	16	5.5	132.68	104	189.006	4.168	37.8	5.61	4.200	333
	6	19	6.0	147.44	116	216.391	4.949	38.3	5.80	4.808	395
	9	12	6.3	139.63	110	168.705	3.130	34.8	4.74	3.749	250
	9	16	6.3	158.91	125	205.356	4.171	36.0	5.13	4.563	333
	9	19	6.3	173.37	136	232.404	4.953	36.6	5.35	5.164	395
	9	22	7.0	188.02	148	259.079	5.734	37.2	5.53	5.757	458
	9	25	7.0	202.48	159	285.391	6.515	37.6	5.68	6.341	521
	12	16	8.4	185.57	146	221.705	4.179	34.6	4.76	4.926	334
	12	19	8.4	199.85	157	248.416	4.960	35.3	4.99	5.520	396



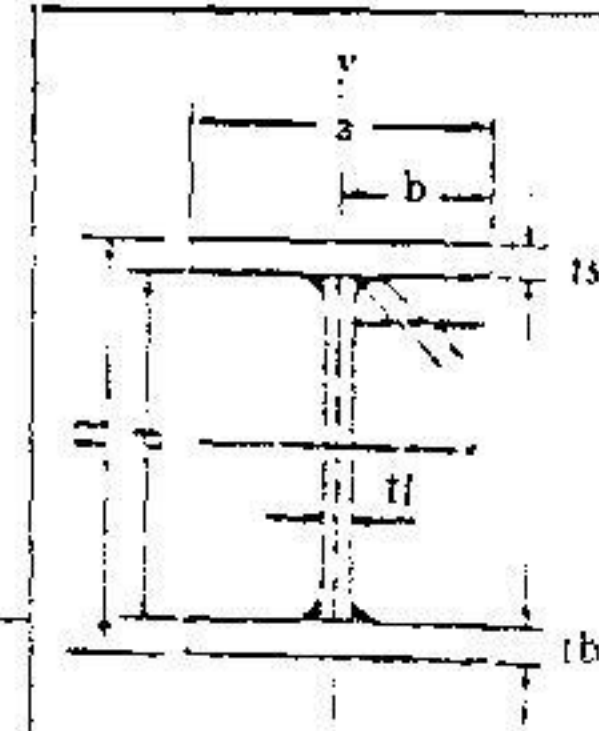
Ukuran Profil - H. mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jarak Jari Garis		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
900 x 250	12	22	8.4	214.13	168	274.789	5.741	35.9	5.19	6.105	455
	12	25	8.4	228.41	172	300.733	6.522	36.2	5.25	6.683	521
	12	28	8.4	242.69	191	325.346	7.303	36.7	5.50	7.252	584
	12	32	8.4	261.73	205	359.933	8.346	37.1	5.56	7.998	667
	16	25	11.2	263.50	207	321.205	6.539	35.0	5.00	7.127	522
	16	28	11.2	277.54	218	346.057	7.320	35.4	5.15	7.697	585
	16	32	11.2	296.26	233	379.409	8.361	35.0	5.23	8.431	668
	16	36	11.2	314.98	247	411.806	9.403	36.2	5.48	9.151	752
16	38	11.2	324.34	255	427.771	9.923	36.4	5.55	9.506	793	
900 x 300	6	9	5.0	107.42	84.3	141.483	4.051	36.0	4.15	3.144	270
	6	12	5.0	125.06	98.0	175.557	5.401	37.5	5.53	3.901	360
	6	16	5.5	148.68	117	220.288	7.201	38.5	6.97	4.894	480
	6	19	6.0	166.44	131	253.264	8.551	39.0	7.12	5.628	570
	9	12	6.3	151.63	119	192.363	5.405	35.7	5.98	4.274	360
	9	16	6.3	174.91	137	236.617	7.205	36.3	6.43	5.258	480
	9	19	6.3	192.37	151	269.277	8.555	37.4	6.68	5.983	570
	9	22	7.0	210.02	165	301.486	9.905	37.0	6.88	6.699	660
	9	25	7.0	227.43	179	332.246	11.255	38.3	7.04	7.403	750
	12	16	8.4	201.57	159	252.967	7.212	35.5	6.00	5.621	480
	12	19	8.4	218.65	172	285.290	8.562	36.2	6.27	6.335	570
	12	22	8.4	235.13	185	317.167	9.912	36.7	6.49	7.046	660
	12	25	8.4	253.41	199	348.599	11.262	37.1	6.68	7.746	750
	12	28	8.4	270.68	212	379.592	12.612	37.5	6.84	8.435	840
	12	32	8.4	293.73	231	420.234	14.412	37.9	7.02	9.338	960
	16	25	11.2	289.50	226	369.070	11.279	35.9	6.27	8.201	750
	16	28	11.2	305.54	240	399.532	12.628	36.0	6.45	8.880	840
	16	32	11.2	328.26	258	439.710	14.428	36.7	6.65	9.771	960
	16	36	11.2	350.98	276	479.029	16.228	37.0	6.82	10.645	1080
	16	38	11.2	362.34	284	498.406	17.128	37.2	6.89	11.075	1140
900 x 350	6	9	5.0	116.42	91.4	159.346	6.432	37.0	7.44	3.541	367
	6	12	5.0	137.06	108	199.215	8.576	38.1	7.92	4.427	490
	6	16	5.5	164.68	129	251.530	11.434	39.1	8.34	5.589	653
	6	19	6.0	185.44	146	290.138	13.578	39.6	8.57	6.447	775
	9	12	6.3	163.63	128	215.020	8.590	36.4	7.25	4.800	490
	9	16	6.3	190.91	150	257.879	11.438	37.5	7.75	5.952	653
	9	19	6.3	211.37	166	306.150	13.582	38.1	8.03	6.803	775
	9	22	7.0	232.02	182	343.894	15.726	38.5	8.24	7.642	898
	9	25	7.0	252.48	198	381.110	17.869	38.9	8.42	8.469	1021
	12	16	8.4	217.57	171	284.228	11.445	36.2	7.27	6.316	654
	12	19	8.4	237.85	187	322.163	13.589	36.9	7.58	7.159	776
	12	22	8.4	258.13	203	359.574	15.733	37.4	7.82	7.990	899
	12	25	8.4	278.41	219	396.464	17.876	37.8	8.03	8.810	1021
	12	28	8.4	298.59	234	432.837	20.020	38.1	8.20	9.618	1144
	12	32	8.4	325.73	256	480.536	22.878	38.4	8.37	10.678	1307
	16	25	11.2	313.70	246	416.934	17.893	36.6	7.58	9.255	1022



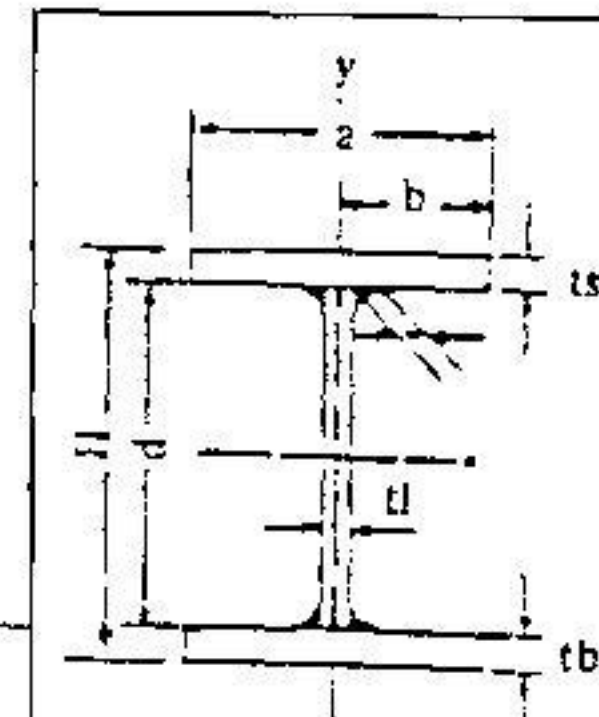
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
900 X 350	18	26	11.2	333.64	202	452.877	20.037	36.9	7.77	10.063	1.144
	18	32	11.2	360.26	283	500.012	22.895	37.3	7.99	11.111	1.208
	16	36	11.2	386.98	304	546.253	25.753	37.6	8.18	12.138	1.471
	16	38	11.2	400.34	314	569.041	27.182	37.8	8.26	12.645	1.553
900 X 400	6	9	5.0	125.42	98.5	177.209	9.601	37.6	8.76	3.937	480
	6	12	5.0	149.06	117	222.873	12.901	38.7	9.29	4.952	640
	6	19	6.0	204.44	100	327.011	20.268	40.0	9.97	7.266	1.013
	9	12	6.3	175.63	138	239.678	12.805	37.0	8.55	5.326	640
	9	16	6.3	206.91	162	299.141	17.071	38.0	9.10	6.847	853
	9	19	6.3	230.37	181	343.024	20.271	38.0	9.39	7.622	1.013
	9	22	7.0	254.02	199	386.301	23.471	39.0	9.63	8.584	1.173
	9	25	7.0	277.48	218	428.975	26.671	39.3	9.82	9.532	1.333
	12	16	8.4	233.57	183	315.490	17.079	36.8	8.57	7.010	853
	12	19	8.4	256.85	202	359.036	20.279	37.4	8.90	7.978	1.013
	12	22	8.4	280.13	220	401.982	23.478	37.9	9.17	8.932	1.173
	12	25	8.4	303.41	238	444.328	26.678	38.3	9.39	9.873	1.333
	12	28	8.4	326.69	256	486.082	29.878	38.6	9.58	10.801	1.493
	12	32	8.4	357.73	281	540.837	34.145	38.9	9.78	12.018	1.707
	16	25	11.2	338.50	266	464.799	26.695	37.1	8.91	10.328	1.334
	16	28	11.2	361.54	284	506.122	29.895	37.5	9.12	11.247	1.494
	16	32	11.2	392.26	308	560.313	34.161	37.9	9.36	12.451	1.708
	16	36	11.2	422.96	332	613.476	38.428	38.1	9.55	13.632	1.921
	16	38	11.2	438.34	344	639.676	40.561	38.3	9.64	14.215	2.028
900 X 450	6	9	5.0	134.42	106	195.072	13.670	38.1	10.0	4.334	607
	6	12	5.0	161.06	126	246.530	18.226	39.1	10.6	5.478	810
	6	16	5.5	196.68	154	314.053	24.301	40.0	11.1	6.978	1.080
	6	19	6.0	223.44	175	363.884	28.857	40.4	11.3	8.086	1.252
	9	12	6.3	187.63	147	263.336	18.230	37.5	9.87	5.851	810
	9	16	6.3	222.91	175	330.402	24.305	38.5	10.4	7.342	1.080
	9	19	6.3	249.37	196	379.897	28.861	39.0	10.7	8.442	1.282
	9	22	7.0	276.02	217	428.709	33.417	39.4	11.0	9.426	1.485
	9	25	7.0	302.48	237	476.839	37.973	39.7	11.2	10.596	1.687
	12	16	8.4	249.57	196	346.752	24.312	37.3	9.89	7.705	1.080
	12	19	8.4	275.85	217	395.910	28.868	37.9	10.2	8.798	1.283
	12	22	8.4	302.13	237	444.389	33.424	38.4	10.5	9.875	1.485
	12	25	8.4	328.41	258	492.193	37.980	38.7	10.7	10.937	1.688
	12	28	8.4	354.69	278	539.327	42.537	39.0	10.9	11.985	1.890
	12	32	8.4	389.73	306	601.138	48.612	39.3	11.1	13.358	2.160
	16	25	11.2	363.50	285	512.663	37.997	37.6	10.2	11.392	1.688
	16	28	11.2	389.54	306	559.367	42.553	38.0	10.4	12.430	1.891
	16	32	11.2	424.26	333	620.614	48.628	38.3	10.7	13.791	2.161
	16	36	11.2	458.98	360	680.700	54.703	38.6	10.9	15.176	2.421
	16	38	11.2	476.34	374	710.310	57.740	38.7	11.0	15.784	2.566



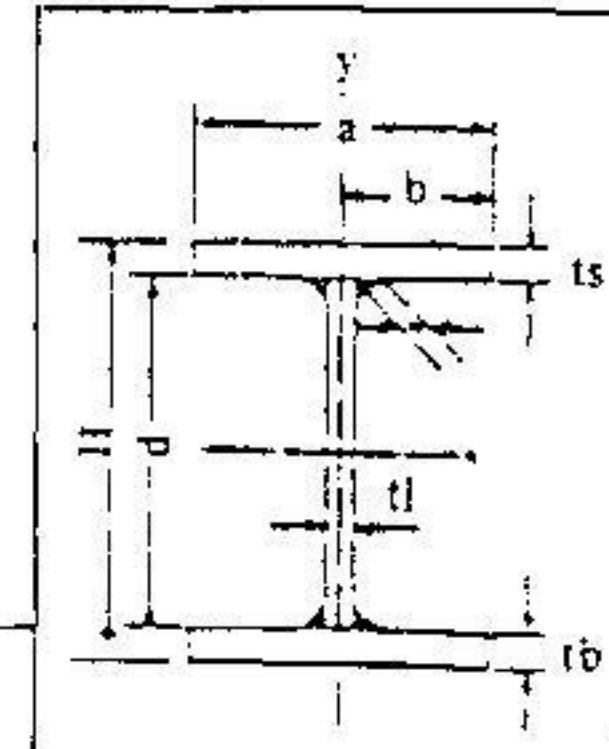
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	keadatan	tebalap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
950 X 200	6	9	5.0	92.42	72.5	120.173	1.201	36.1	3.61	2.529	120
	6	12	5.0	104.06	81.7	145.288	1.601	37.4	3.93	3.058	160
	6	16	5.5	119.68	93.9	178.271	2.134	38.6	4.23	3.752	213
	6	19	6.0	131.44	103	202.624	2.534	39.3	4.40	4.263	253
	9	12	6.3	132.13	104	165.138	1.605	35.4	3.49	3.476	160
	9	16	6.3	147.41	115	197.812	2.138	36.7	3.81	4.160	213
	9	19	6.3	158.87	123	221.588	2.538	37.4	4.00	4.658	253
	9	22	7.0	170.52	134	245.271	2.938	38.0	4.16	5.163	293
	9	25	7.0	181.98	143	268.833	3.338	38.5	4.29	5.658	333
	12	16	8.4	175.57	138	216.952	2.146	35.2	3.50	4.567	214
	12	19	8.4	186.85	147	240.567	2.546	36.0	3.70	5.064	254
	12	22	8.4	196.13	156	263.863	2.946	36.6	3.86	5.558	294
	12	25	8.4	209.41	164	286.858	3.346	37.1	4.00	6.039	334
	12	28	8.4	220.69	173	309.548	3.746	37.5	4.13	6.516	374
	12	32	8.4	235.73	185	339.331	4.279	38.0	4.27	7.143	427
	16	25	11.2	246.50	194	311.156	3.364	35.7	3.71	6.550	336
	16	28	11.2	257.54	202	333.365	3.763	36.1	3.84	7.018	376
	16	32	11.2	272.26	214	362.514	4.296	36.6	3.98	7.631	429
	16	36	11.2	286.98	225	391.142	4.829	37.0	4.11	8.234	482
	16	38	11.2	294.34	231	405.262	5.096	37.2	4.17	8.531	509
950 X 250	6	9	5.0	101.42	79.6	140.097	2.345	37.2	4.81	2.949	167
	6	12	5.0	116.06	91.1	171.684	3.126	38.5	5.20	3.614	250
	6	16	5.5	135.68	107	213.169	4.168	39.7	5.55	4.487	333
	6	19	6.0	150.44	119	243.811	4.949	40.2	5.74	5.122	395
	9	12	6.3	144.13	113	191.535	3.130	36.5	4.67	4.032	250
	9	16	6.3	163.41	128	232.509	4.172	37.8	5.06	4.894	333
	9	19	6.3	177.87	140	262.775	4.953	38.5	5.28	5.532	396
	9	22	7.0	192.52	15	292.645	5.734	39.0	5.47	6.160	458
	9	25	7.0	206.98	162	322.122	6.515	39.5	5.62	6.781	521
	12	16	8.4	191.57	150	251.850	4.179	36.3	4.68	5.302	334
	12	19	8.4	205.85	162	281.739	4.961	37.1	4.92	5.931	396
	12	22	8.4	220.13	173	311.227	5.742	37.7	5.12	6.552	459
	12	25	8.4	234.41	184	340.347	6.523	38.2	5.28	7.165	521
	12	28	8.4	248.69	195	369.072	7.304	38.6	5.43	7.769	584
	12	32	8.4	267.73	210	406.776	8.346	39.0	5.59	8.563	667
	16	25	11.2	271.50	213	364.647	6.541	36.8	4.93	7.616	523
	16	28	11.2	285.54	224	392.889	7.322	37.2	5.08	8.271	585
	16	32	11.2	304.26	239	429.960	8.363	37.7	5.26	9.051	669
	16	36	11.2	322.98	254	466.367	9.404	38.1	5.41	9.818	752
	16	38	11.2	332.34	261	484.324	9.925	38.3	5.48	10.196	794
950 X 300	6	9	5.0	110.42	86.7	160.021	4.051	38.1	6.06	3.368	270
	6	12	5.0	128.06	101	198.031	5.401	39.4	6.50	4.170	360
	6	16	5.5	151.68	119	240.000	7.231	40.5	6.90	5.222	480
	6	19	6.0	169.44	133	284.988	8.551	41.0	7.11	5.999	570
	9	12	6.3	156.13	123	217.932	5.405	37.4	5.89	4.588	360



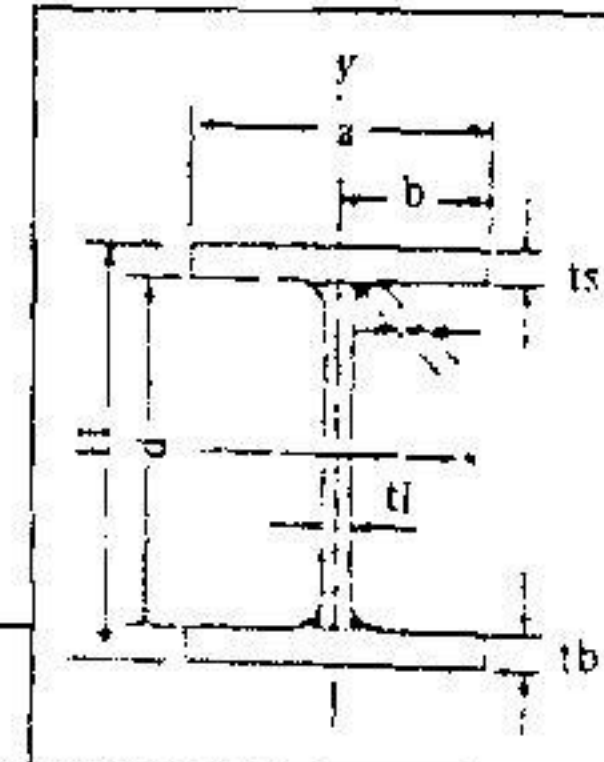
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-layap	LL			I _x	I _y	i _x	i _y	Z _x	Z _y
H x B	t _s	t _b	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
950 x 300	9	16	6.3	179.41	141	267.407	7.205	38.6	5.35	5.629	480
	9	19	6.3	196.87	155	303.952	8.555	39.3	5.60	6.398	570
	9	22	7.0	214.52	168	340.019	9.905	39.9	5.81	7.156	660
	9	25	7.0	231.98	182	375.612	11.255	40.3	5.97	7.907	750
	12	16	8.4	207.57	163	286.747	7.213	37.2	5.91	6.036	480
	12	19	8.4	224.85	177	322.915	8.563	38.0	6.18	6.798	570
	12	22	8.4	242.13	190	358.511	9.913	38.5	6.41	7.549	660
	12	25	8.4	259.41	204	393.827	11.262	39.0	6.60	8.291	750
	12	28	8.4	276.69	217	428.596	12.612	39.4	6.76	9.023	840
	12	32	8.4	299.73	235	474.221	14.412	39.8	6.95	9.923	960
	16	25	11.2	296.50	233	418.137	11.290	37.7	6.19	9.602	750
	16	28	11.2	313.54	246	452.413	12.630	38.1	6.37	9.524	840
	16	32	11.2	336.26	264	497.405	14.430	38.5	6.57	10.471	960
	16	36	11.2	358.98	282	541.591	16.229	38.9	6.74	11.401	1080
	16	38	11.2	370.34	291	563.395	17.129	39.1	6.82	11.860	1140
950 x 350	6	9	5.0	119.42	93.7	179.945	6.432	38.8	7.35	3.788	357
	6	12	5.0	140.06	110	224.478	8.576	40.1	7.82	4.725	400
	6	16	5.5	167.68	132	282.964	11.424	41.1	8.27	5.957	453
	6	19	6.0	188.44	148	326.165	13.578	41.6	8.50	6.866	515
	9	12	6.3	168.13	132	244.328	8.580	38.2	7.15	5.143	480
	9	16	6.3	195.41	153	302.304	11.438	39.4	7.66	6.364	553
	9	19	6.3	215.87	169	345.128	13.582	40.0	7.94	7.265	616
	9	22	7.0	236.52	186	387.393	15.726	40.5	8.17	8.155	689
	9	25	7.0	255.98	202	429.101	17.869	40.9	8.35	9.033	762
	12	16	8.4	223.57	176	321.645	11.446	38.0	7.17	6.271	554
	12	19	8.4	243.85	191	364.092	13.590	38.7	7.48	7.665	627
	12	22	8.4	264.13	207	405.965	15.733	39.3	7.73	8.547	699
	12	25	8.4	284.41	223	447.326	17.877	39.7	7.94	9.417	772
	12	28	8.4	304.69	239	488.120	20.021	40.1	8.12	10.276	844
	12	32	8.4	331.73	260	541.667	22.979	40.4	8.32	11.403	917
	16	25	11.2	321.50	252	471.626	17.895	38.4	7.48	9.928	762
	16	28	11.2	341.54	268	511.938	20.038	38.8	7.68	10.777	835
	16	32	11.2	368.26	289	564.850	22.896	39.2	7.91	11.891	908
	16	36	11.2	394.98	310	616.816	25.754	39.5	8.10	12.985	981
	16	38	11.2	408.34	321	642.446	27.183	39.7	8.18	13.525	1053
950 x 400	6	9	5.0	128.42	101	199.869	9.601	39.5	8.66	4.207	480
	6	12	5.0	152.06	119	250.875	12.801	40.6	9.18	5.281	540
	6	16	5.5	183.68	144	317.862	17.068	41.6	9.65	6.691	653
	6	19	6.0	207.44	163	367.341	20.268	42.1	9.90	7.733	766
	9	12	6.3	180.13	141	270.725	12.835	38.8	8.44	5.699	640
	9	16	6.3	211.41	166	337.202	17.072	40.0	9.00	7.098	753
	9	19	6.3	234.87	184	386.305	20.272	40.6	9.30	8.132	866
	9	22	7.0	258.52	203	434.767	23.472	41.0	9.54	9.152	979
	9	25	7.0	281.98	221	482.591	26.672	41.4	9.74	10.159	1092
	12	16	8.4	239.57	180	356.543	17.079	38.6	8.46	7.506	853
	12	19	8.4	262.85	206	405.269	20.279	39.3	8.80	8.531	966



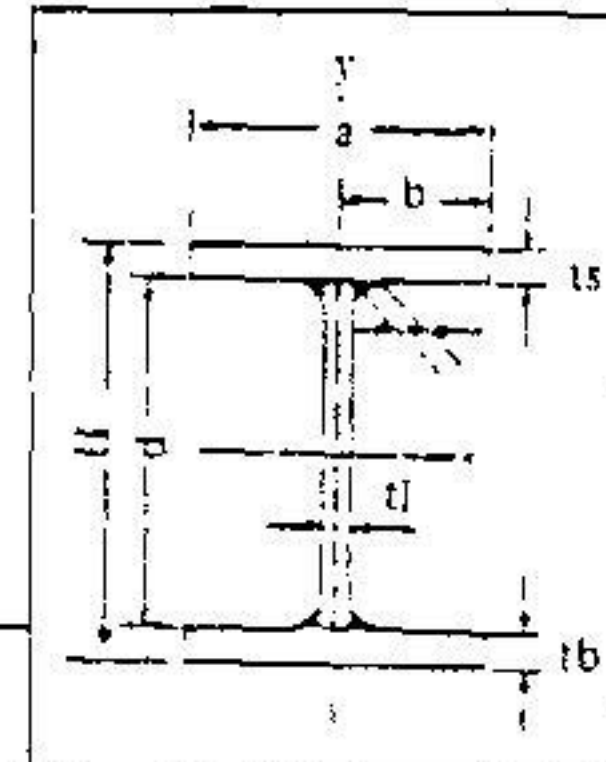
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			I _x	I _y	i _x	i _y	Z _x	Z _y
H x B	t _s	t _b	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
950 X 400	12	22	8.4	286.13	225	453.359	23.479	39.9	9.08	9.543	1.173
	12	25	8.4	309.41	243	500.816	26.679	40.2	9.30	10.543	1.333
	12	28	8.4	332.69	261	547.844	29.879	40.6	9.49	11.529	1.493
	12	32	8.4	363.73	286	609.112	34.146	41.0	9.70	12.823	1.707
	16	25	11.2	346.50	272	525.116	26.697	39.0	8.80	11.055	1.334
	16	28	11.2	369.54	290	571.462	29.897	39.4	9.02	12.030	1.494
	16	32	11.2	400.26	314	632.295	34.163	39.8	9.26	13.311	1.708
	16	36	11.2	430.98	338	692.040	38.429	40.1	9.46	14.568	1.921
	16	38	11.2	448.34	350	721.508	40.563	40.3	9.55	15.129	2.028
950 X 450	6	9	5.0	137.42	108	219.792	13.670	40.0	3.99	4.627	607
	6	12	5.0	164.06	129	277.271	18.226	41.1	10.5	5.837	810
	6	16	5.5	199.68	157	352.759	24.301	42.0	11.0	7.426	1.080
	6	19	6.0	226.44	178	408.618	28.957	42.5	11.2	8.600	1.282
	9	12	6.3	192.13	151	297.122	16.220	39.4	9.76	6.255	810
	9	16	6.3	227.41	179	372.100	24.305	40.5	10.3	7.833	1.080
	9	19	6.3	253.97	199	427.482	28.861	41.0	10.6	8.999	1.282
	9	22	7.0	280.52	220	482.141	33.418	41.5	10.8	10.150	1.485
	9	25	7.0	306.98	241	536.080	37.974	41.8	11.1	11.285	1.687
	12	16	8.4	255.57	201	391.440	24.313	39.2	9.78	8.240	1.080
	12	19	8.4	281.95	221	446.446	28.869	39.8	10.1	9.398	1.283
	12	22	8.4	308.13	247	500.733	33.425	40.3	10.4	10.541	1.485
	12	25	8.4	334.41	263	554.305	37.981	40.7	10.6	11.669	1.688
	12	28	8.4	360.69	283	607.169	42.537	41.1	10.8	12.782	1.890
	12	32	8.4	395.73	311	676.557	48.612	41.4	11.0	14.243	2.160
	16	25	11.2	371.50	292	578.605	37.999	39.5	10.1	12.131	1.688
	16	28	11.2	397.54	312	630.986	42.555	39.9	10.3	13.283	1.891
	16	32	11.2	432.26	339	699.741	48.630	40.3	10.6	14.731	2.161
	16	36	11.2	466.98	367	767.265	54.704	40.6	10.8	16.152	2.431
	16	38	11.2	484.34	380	800.569	57.742	40.7	10.9	16.854	2.566
1,000 X 200	9	12	6.3	136.63	107	186.871	1.605	37.0	3.43	3.737	160
	9	16	6.3	151.91	119	222.962	2.139	38.4	3.76	4.459	213
	9	19	6.3	163.37	128	249.641	2.539	39.1	3.95	4.992	253
	9	22	7.0	175.02	137	275.991	2.939	39.8	4.10	5.519	293
	9	25	7.0	186.48	146	302.011	3.339	40.3	4.24	6.040	333
	12	16	8.4	181.57	143	246.638	2.147	36.9	3.45	4.912	214
	12	19	8.4	192.85	151	271.896	2.547	37.6	3.64	5.437	254
	12	22	8.4	204.13	160	297.834	2.947	38.3	3.81	5.956	294
	12	25	8.4	215.41	169	323.445	3.346	38.8	3.95	6.468	334
	12	28	8.4	226.69	178	348.735	3.746	39.3	4.07	6.974	374
	12	32	8.4	241.73	190	381.959	4.280	39.8	4.21	7.639	428
	16	25	11.2	254.50	200	352.024	3.365	37.3	3.65	7.040	336
	16	28	11.2	265.54	208	376.776	3.765	37.8	3.78	7.535	376
	16	32	11.2	280.22	220	400.207	4.298	38.3	3.93	8.185	429
	16	36	11.2	294.98	232	441.259	4.831	38.8	4.05	8.825	483
	16	38	11.2	302.34	237	457.036	5.098	39.0	4.12	9.140	509



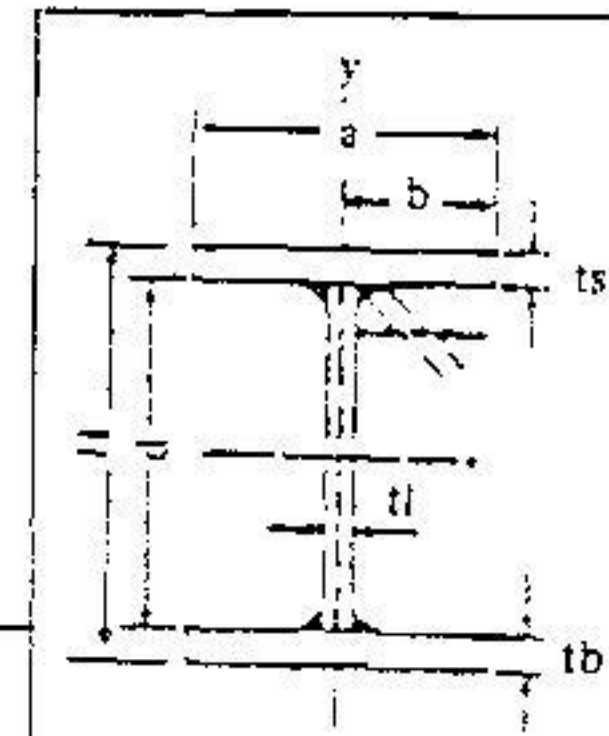
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			ix	iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1.000 X 250	9	12	5.3	148.63	117	216.157	3.130	38.2	4.60	4.323	250
	9	16	6.3	167.91	132	261.696	4.172	39.5	4.99	5.233	323
	9	19	6.3	182.37	143	295.359	4.853	40.3	5.22	5.907	396
	9	22	7.0	197.02	155	328.606	5.734	40.9	5.40	6.572	458
	9	25	7.0	211.48	166	361.438	6.516	41.4	5.56	7.228	521
	12	16	8.4	197.57	155	284.372	4.180	39.0	4.61	5.687	334
	12	19	8.4	211.85	166	317.616	4.961	39.8	4.85	6.352	396
	12	22	8.4	226.13	173	350.449	5.742	39.4	5.03	7.008	458
	12	25	8.4	240.41	189	383.872	6.524	40.0	5.22	7.657	521
	12	28	8.4	254.69	200	414.689	7.305	40.4	5.38	8.297	584
	12	32	8.4	273.73	215	456.948	8.046	40.8	5.53	9.138	667
	16	25	11.2	279.50	219	411.451	6.542	39.5	4.85	8.229	523
	16	28	11.2	293.54	230	442.930	7.323	39.0	5.01	8.859	585
	16	32	11.2	312.26	245	484.282	8.065	39.5	5.19	9.685	669
	16	36	11.2	330.98	260	524.934	8.406	39.9	5.35	10.496	752
	16	38	11.2	340.34	267	544.995	9.927	40.1	5.42	10.899	794
1.000 X 300	9	12	6.3	160.63	126	245.442	3.405	39.1	5.81	4.908	360
	9	16	6.3	163.91	144	300.429	4.255	40.4	6.27	6.008	480
	9	19	6.3	201.37	158	341.077	5.555	41.2	6.53	6.621	570
	9	22	7.0	219.02	172	381.222	6.905	41.8	6.73	7.624	660
	9	25	7.0	236.48	186	420.865	7.255	42.2	6.91	8.417	750
	12	16	8.4	213.57	168	323.105	4.213	39.0	5.82	6.462	480
	12	19	8.4	230.95	181	363.334	5.567	39.7	6.10	7.266	570
	12	22	8.4	248.13	195	403.065	6.913	40.4	6.33	8.061	660
	12	25	8.4	265.41	208	442.299	7.263	40.9	6.53	8.845	750
	12	28	8.4	282.69	222	481.042	8.613	41.3	6.69	9.620	840
	12	32	8.4	305.73	240	531.937	10.413	41.7	6.88	10.638	960
	16	25	11.2	304.50	239	470.878	7.282	39.4	6.11	9.417	752
	16	28	11.2	321.54	252	509.083	8.632	39.9	6.29	10.181	842
	16	32	11.2	344.26	270	559.271	10.431	40.4	6.49	11.185	962
	16	36	11.2	366.92	288	605.610	12.231	40.8	6.67	12.172	1.082
	16	38	11.2	378.34	297	632.962	13.131	41.0	6.75	12.659	1.142
1.000 X 350	9	12	6.3	172.63	136	274.728	3.580	39.9	7.06	5.494	490
	9	16	6.3	199.91	157	339.163	4.439	41.2	7.57	6.783	653
	9	19	6.3	220.37	173	385.795	5.582	41.9	7.86	7.735	776
	9	22	7.0	241.02	189	433.637	6.726	42.5	8.09	8.676	898
	9	25	7.0	261.48	205	480.292	7.870	42.9	8.28	9.605	1.021
	12	16	8.4	229.57	180	361.939	4.447	39.8	7.08	7.236	654
	12	19	8.4	249.95	196	409.052	5.590	40.5	7.39	8.181	776
	12	22	8.4	270.13	212	455.680	6.734	41.1	7.65	9.113	899
	12	25	8.4	290.41	228	501.726	7.878	41.6	7.86	10.034	1.021
	12	28	8.4	310.69	244	547.195	9.021	42.0	8.04	10.943	1.144
	12	32	8.4	337.73	265	606.926	10.880	42.4	8.24	12.138	1.307
	16	25	11.2	329.50	259	530.305	7.896	40.2	7.39	10.606	1.022
	16	28	11.2	349.57	274	575.236	9.040	40.7	7.59	11.504	1.145
	16	32	11.2	376.26	295	634.261	10.880	41.1	7.82	12.685	1.308
	16	36	11.2	402.98	316	692.385	12.756	41.5	8.01	13.845	1.471
	16	38	11.2	415.34	327	720.925	13.185	41.7	8.10	14.416	1.553



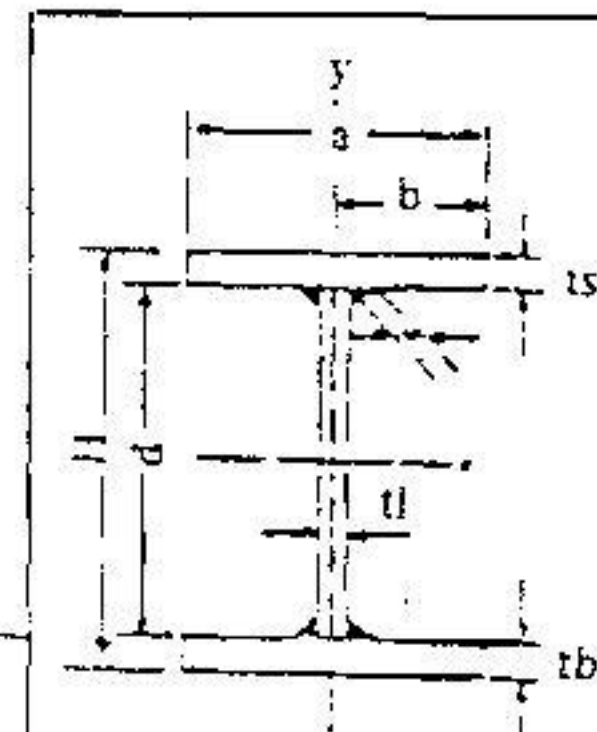
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1.000 X 400	9	12	6.3	184.63	145	304.014	12.805	40.6	8.34	9.300	340
	9	16	6.3	215.91	169	377.897	17.072	41.9	9.90	1.157	350
	9	19	6.3	239.37	188	432.513	20.272	42.6	9.21	9.650	1.010
	9	22	7.0	263.02	206	486.643	23.472	43.0	9.46	9.129	1.170
	9	25	7.0	286.48	225	539.719	26.672	43.4	9.66	10.194	1.332
	12	16	8.4	245.57	193	400.575	17.090	40.4	9.35	1.211	354
	12	19	8.4	268.85	211	454.700	20.230	41.2	9.70	9.095	312
	12	22	8.4	292.13	229	508.296	23.480	41.8	9.98	10.165	1.174
	12	25	8.4	315.41	248	561.153	26.680	42.2	9.21	11.222	1.324
	12	28	8.4	338.69	266	613.348	29.880	42.6	9.41	12.268	1.484
	12	32	8.4	369.73	290	681.916	34.146	43.0	9.62	13.633	1.707
	16	25	11.2	354.50	278	599.732	26.699	40.9	9.70	11.762	1.324
	16	28	11.2	377.54	295	641.389	29.898	41.2	9.92	11.921	1.484
	16	32	11.2	408.26	320	706.250	34.146	41.7	9.77	14.188	1.708
	16	36	11.2	438.98	345	775.951	38.431	42.1	9.98	15.518	1.921
	16	38	11.2	454.34	357	808.885	40.564	42.0	9.47	16.791	2.025
1.000 X 450	9	12	6.3	196.63	154	333.300	18.230	41.2	9.64	9.685	310
	9	16	6.3	221.91	182	416.630	24.305	42.4	9.72	9.032	1.090
	9	19	6.3	253.37	203	473.230	28.362	43.0	9.95	9.654	1.232
	9	22	7.0	285.02	224	539.055	33.415	43.5	9.93	10.781	1.465
	9	25	7.0	311.48	245	599.146	37.974	43.9	10.11	11.962	1.697
	12	16	8.4	261.57	205	439.306	24.313	41.0	9.66	8.736	1.080
	12	19	8.4	287.85	226	500.467	28.370	41.7	10.00	10.009	1.223
	12	22	8.4	314.13	247	560.911	33.428	42.3	10.03	11.218	1.485
	12	25	8.4	340.41	267	620.550	37.982	42.7	10.55	12.411	1.682
	12	28	8.4	366.69	288	679.501	42.538	43.1	10.77	13.690	1.890
	12	32	8.4	401.73	315	756.905	48.613	43.4	11.00	15.135	2.160
	16	25	11.2	379.50	298	649.159	38.001	41.4	10.00	12.993	1.698
	16	28	11.2	405.54	318	707.542	42.557	41.8	10.22	14.150	1.891
	16	32	11.2	440.26	346	784.239	48.631	42.3	10.55	15.664	2.161
	16	36	11.2	474.98	373	859.635	54.706	42.6	10.77	17.192	2.431
	16	38	11.2	492.34	386	896.851	57.744	42.7	10.88	17.937	2.566
1.050 X 200	9	12	6.3	141.13	111	210.302	1.606	33.7	3.39	4.005	160
	9	16	6.3	155.41	123	250.201	2.139	40.0	3.70	4.765	213
	9	19	6.3	167.87	132	279.717	2.538	40.9	3.89	5.327	253
	9	22	7.0	179.52	141	308.885	2.939	41.5	4.05	5.893	293
	9	25	7.0	190.98	150	337.708	3.339	42.1	4.19	6.432	333
	12	16	8.4	187.57	147	276.576	2.147	38.5	3.39	5.268	214
	12	19	8.4	198.85	156	305.626	2.547	39.3	3.58	5.821	254
	12	22	8.4	210.13	165	334.338	2.947	40.0	3.75	6.368	294
	12	25	8.4	221.41	174	362.708	3.347	40.5	3.90	6.908	334
	12	28	8.4	232.69	183	390.739	3.747	41.1	4.02	7.442	374
	12	32	8.4	247.73	194	427.591	4.280	41.6	4.16	8.144	429
	16	25	11.2	262.50	206	396.041	3.357	39.0	3.59	7.543	336
	16	28	11.2	273.54	215	423.476	3.757	39.5	3.72	8.066	376
	16	32	11.2	289.25	226	459.544	4.300	40.1	3.87	8.753	430



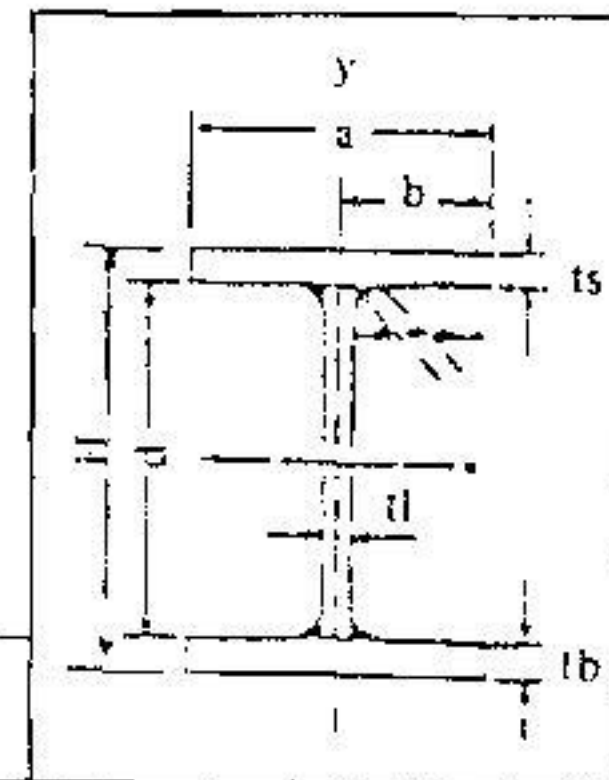
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1,050 X 200	16	36	11.2	302.98	238	495.031	4.833	40.5	4.00	9.429	483
	16	38	11.2	310.34	244	512.558	5.099	40.7	4.06	9.763	509
1,050 X 250	9	12	6.3	153.13	120	242.527	3.131	39.9	4.53	4.621	250
	9	16	6.3	172.41	135	292.971	4.172	41.3	4.32	5.550	333
	9	19	6.3	186.87	147	330.213	4.954	42.1	5.15	6.289	396
	9	22	7.0	201.52	158	367.017	5.735	42.7	5.34	6.990	458
	9	25	7.0	215.98	170	403.085	6.516	43.3	5.50	7.683	521
	12	16	8.4	203.57	160	319.345	4.181	39.7	4.54	6.062	334
	12	19	8.4	217.85	171	356.124	4.962	40.5	4.78	6.783	396
	12	22	8.4	232.13	182	392.470	5.743	41.2	4.98	7.475	459
	12	25	8.4	246.41	193	428.395	6.524	41.8	5.15	8.159	521
	12	28	8.4	260.69	205	463.871	7.305	42.2	5.30	8.835	584
	12	32	8.4	279.73	220	510.524	8.347	42.8	5.47	9.724	657
	16	25	11.2	287.50	226	461.718	6.544	40.2	4.79	8.794	523
	16	28	11.2	301.54	237	496.638	7.325	40.7	4.94	9.459	586
	16	32	11.2	320.26	251	542.477	8.366	41.3	5.13	10.232	665
	16	36	11.2	338.98	266	587.608	9.408	41.7	5.28	11.192	752
	16	38	11.2	342.34	273	609.898	9.929	41.9	5.35	11.617	794
1,050 X 300	9	12	6.3	165.13	130	274.851	5.406	40.8	5.73	5.237	360
	9	16	6.3	188.41	148	325.741	7.206	42.2	6.19	6.395	480
	9	19	6.3	205.87	162	380.710	8.556	43.0	6.45	7.251	570
	9	22	7.0	223.52	175	425.149	9.906	43.7	6.67	8.098	660
	9	25	7.0	240.98	189	469.062	11.256	44.2	6.84	8.934	750
	12	16	8.4	219.57	172	362.115	7.214	40.7	5.74	6.897	480
	12	19	8.4	236.85	186	406.621	8.564	41.5	6.03	7.745	570
	12	22	8.4	254.13	199	450.602	9.914	42.2	6.26	8.682	660
	12	25	8.4	271.41	213	494.062	11.264	42.7	6.45	9.410	750
	12	28	8.4	288.69	227	537.603	12.614	43.2	6.62	10.228	840
	12	32	8.4	311.73	245	593.457	14.414	43.7	6.81	11.303	960
	16	25	11.2	312.50	245	527.025	11.284	41.2	6.03	10.045	752
	16	28	11.2	329.54	259	569.740	12.633	41.7	6.21	10.852	842
	16	32	11.2	352.26	277	625.410	14.433	42.2	6.42	11.912	962
	16	36	11.2	374.98	294	680.184	16.233	42.7	6.60	12.955	1082
	16	38	11.2	386.34	303	707.237	17.133	42.9	6.67	13.471	1142
1,050 X 350	9	12	6.3	177.13	139	307.276	6.581	41.7	6.97	5.852	490
	9	16	6.3	204.41	160	373.510	11.439	43.1	7.49	7.209	653
	9	19	6.3	224.87	177	431.206	13.583	43.8	7.79	8.213	776
	9	22	7.0	245.52	193	483.281	15.726	44.4	8.01	9.205	898
	9	25	7.0	265.98	209	534.709	17.870	44.9	8.21	10.185	1021
	12	16	8.4	235.57	185	404.895	11.447	41.5	6.99	7.712	654
	12	19	8.4	255.85	201	457.117	13.591	42.3	7.30	8.706	776
	12	22	8.4	276.13	217	508.734	15.735	43.0	7.56	9.690	899
	12	25	8.4	296.41	233	559.739	17.878	43.5	7.78	10.661	1021
	12	28	8.4	316.69	249	610.125	20.022	43.9	7.96	11.621	1144
	12	32	8.4	343.73	270	676.090	22.980	44.4	8.17	12.823	1307
	16	25	11.2	337.50	265	593.072	17.898	42.0	7.30	11.296	1022



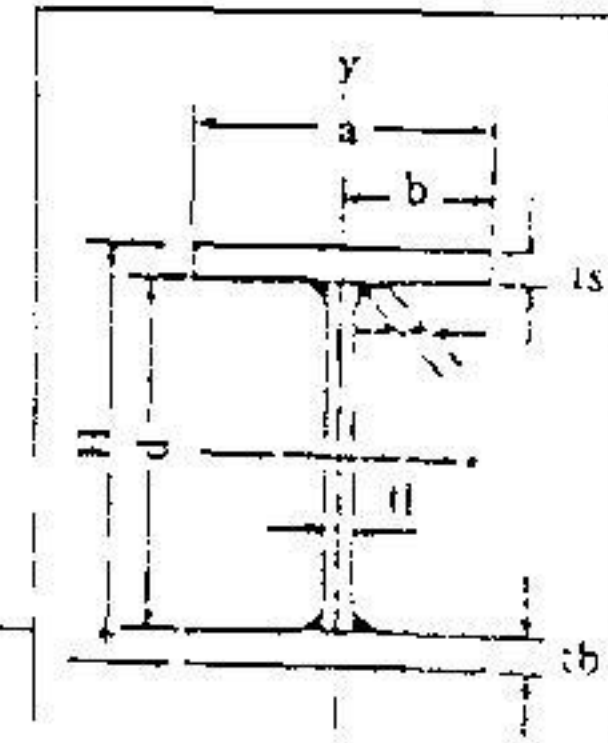
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1.050 X 350	16	28	11.2	357.54	281	542.372	20.042	42.5	7.51	12.245	1.145
	16	32	11.2	384.26	302	708.343	22.900	43.0	7.74	13.482	1.208
	16	36	11.2	410.98	323	772.751	25.153	43.4	7.94	14.719	1.271
	16	38	11.2	424.34	333	804.577	27.157	43.6	8.02	15.325	1.353
1.050 X 400	9	12	6.3	139.13	148	339.501	12.908	42.4	6.24	6.468	640
	9	16	6.3	220.41	173	421.280	17.072	43.7	8.81	8.024	853
	9	19	6.3	243.87	191	481.702	20.272	44.5	9.13	9.175	1.013
	9	22	7.0	267.52	210	541.413	23.472	45.0	9.38	10.312	1.173
	9	25	7.0	290.98	228	600.418	26.672	45.4	9.58	11.436	1.333
	12	16	8.4	251.57	197	447.554	17.081	42.2	8.26	8.526	854
	12	19	8.4	274.85	216	507.513	20.281	43.0	8.61	9.658	1.014
	12	22	8.4	298.13	234	566.866	23.481	43.7	8.89	10.797	1.174
	12	25	8.4	321.41	252	625.416	26.681	44.2	9.12	11.912	1.334
	12	28	8.4	344.69	271	683.267	29.880	44.6	9.32	13.014	1.494
	12	32	8.4	375.73	295	759.324	34.147	45.0	9.55	14.463	1.707
	16	25	11.2	362.50	285	658.749	26.700	42.7	8.61	12.547	1.335
	16	28	11.2	385.54	303	716.004	29.900	43.2	8.83	13.638	1.495
	16	32	11.2	416.26	327	791.277	34.166	43.7	9.08	15.071	1.708
	16	36	11.2	446.98	351	865.337	38.433	44.1	9.29	16.482	1.921
	16	38	11.2	462.34	363	901.916	40.566	44.2	9.39	17.179	2.028
1.050 X 450	9	12	6.3	201.13	158	371.926	18.231	43.0	9.53	7.084	910
	9	16	6.3	236.41	186	464.050	24.306	44.3	10.1	8.539	1.060
	9	19	6.3	262.37	206	532.199	28.662	45.0	10.4	10.137	1.282
	9	22	7.0	289.52	227	599.545	33.418	45.5	10.7	11.419	1.485
	9	25	7.0	315.98	248	666.093	37.974	45.9	10.9	12.687	1.687
	12	16	8.4	267.57	210	490.424	24.314	42.9	9.55	9.341	1.080
	12	19	8.4	293.85	231	558.110	28.970	43.6	9.93	10.630	1.283
	12	22	8.4	320.13	251	624.998	33.426	44.2	10.2	11.904	1.485
	12	25	8.4	346.41	272	691.093	37.983	44.7	10.4	13.163	1.689
	12	28	8.4	372.69	293	756.400	42.539	45.1	10.6	14.407	1.890
	12	32	8.4	407.73	320	842.257	48.514	45.5	10.8	16.042	2.160
	16	25	11.2	387.50	304	724.426	38.002	43.3	9.93	13.798	1.688
	16	28	11.2	413.54	325	789.137	42.553	43.8	10.1	15.031	1.891
	16	32	11.2	448.26	352	874.210	48.633	44.2	10.4	16.651	2.161
	16	36	11.2	482.98	379	957.914	54.708	44.6	10.6	18.245	2.431
	16	38	11.2	500.34	393	999.255	57.745	44.7	10.7	19.033	2.566
1.100 X 200	9	12	6.3	145.63	114	235.487	1.605	40.3	3.32	4.281	160
	9	16	6.3	160.91	126	279.386	2.139	41.7	3.65	5.079	213
	9	19	6.3	172.37	138	311.891	2.539	42.6	3.84	5.670	253
	9	22	7.0	184.02	144	344.012	2.939	43.3	4.00	6.254	293
	9	25	7.0	195.48	153	375.779	3.339	43.9	4.14	6.832	333
	12	16	8.4	152.57	152	305.547	2.146	40.1	3.34	5.633	214
	12	19	8.4	204.85	161	341.826	2.548	40.9	3.53	6.215	254



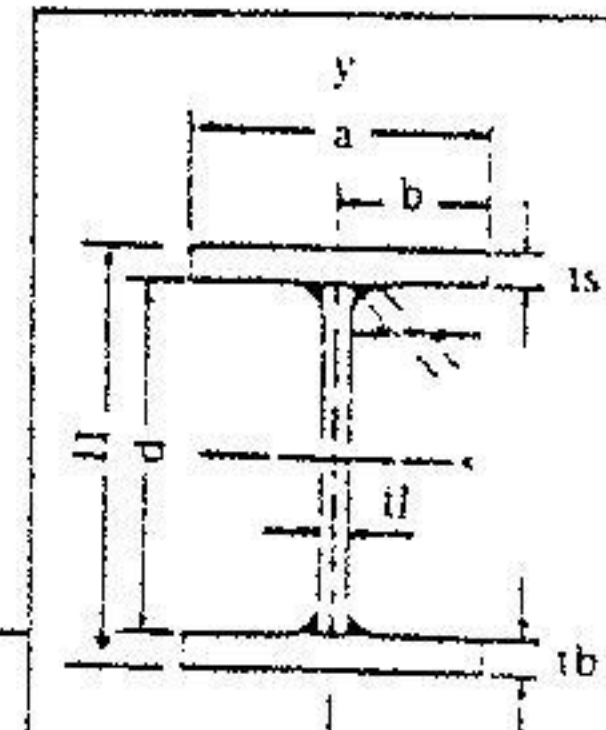
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jarak-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1,100 X 200	12	22	8.4	216.13	170	373.452	2.948	41.6	3.70	6.790	294
	12	25	8.4	227.41	179	404.730	3.348	42.3	3.84	7.355	334
	12	28	8.4	238.69	187	435.633	3.748	42.8	3.97	7.920	374
	12	32	8.4	253.73	199	476.302	4.281	43.4	4.11	8.560	428
	16	25	11.2	270.50	212	443.308	3.369	40.6	3.54	8.060	336
	16	28	11.2	281.54	221	473.553	3.768	41.1	3.67	8.610	376
	16	32	11.2	296.26	233	513.366	4.301	41.7	3.82	9.233	430
	16	36	11.2	310.98	244	552.558	4.825	42.3	3.95	10.046	483
	16	38	11.2	318.34	250	571.929	5.101	42.5	4.01	10.298	510
1,100 X 250	9	12	6.3	157.63	124	271.001	3.131	41.5	4.46	4.927	250
	9	16	6.3	176.91	139	326.392	4.173	43.0	4.86	5.934	333
	9	19	6.3	191.37	150	367.394	4.964	43.8	5.09	6.679	396
	9	22	7.0	206.02	162	407.936	5.735	44.5	5.28	7.417	458
	9	25	7.0	220.48	173	448.019	6.516	45.1	5.44	8.145	521
	12	16	8.4	209.57	165	356.846	4.181	41.3	4.48	6.488	334
	12	19	8.4	223.65	176	397.338	4.963	42.2	4.72	7.224	397
	12	22	8.4	238.13	187	437.375	5.744	42.9	4.92	7.952	459
	12	25	8.4	252.41	198	476.950	6.525	43.5	5.09	8.672	522
	12	28	8.4	266.69	209	516.095	7.306	44.1	5.24	9.383	584
	12	32	8.4	285.73	224	567.579	8.348	44.6	5.41	10.219	667
	16	25	11.2	295.50	232	515.547	6.546	41.9	4.72	9.373	523
	16	28	11.2	309.54	243	554.024	7.327	42.4	4.88	10.073	586
	16	32	11.2	328.26	258	604.643	8.368	43.0	5.06	10.993	669
	16	36	11.2	346.98	272	654.487	9.410	43.5	5.22	11.999	752
	16	38	11.2	356.34	280	679.119	9.930	43.8	5.29	12.347	794
1,100 X 300	9	12	6.3	169.63	133	306.514	3.406	42.5	5.65	5.572	350
	9	16	6.3	192.91	151	373.397	4.206	44.0	6.12	6.789	480
	9	19	6.3	210.37	165	422.906	5.556	44.9	6.38	7.639	570
	9	22	7.0	229.02	179	471.859	6.906	45.5	6.60	8.579	660
	9	25	7.0	245.48	193	520.258	8.256	46.1	6.78	9.459	750
	12	16	8.4	225.57	177	403.852	3.215	42.4	5.67	7.342	481
	12	19	8.4	242.85	191	452.850	4.565	43.3	5.95	8.233	571
	12	22	8.4	260.13	204	501.299	5.915	44.0	6.18	9.114	661
	12	25	8.4	277.41	218	549.199	7.265	44.6	6.39	9.985	751
	12	28	8.4	294.69	231	596.556	8.615	45.0	6.55	10.846	841
	12	32	8.4	317.73	249	658.856	10.414	45.6	6.74	11.979	960
	16	25	11.2	320.50	252	587.787	7.285	42.9	5.95	10.687	752
	16	28	11.2	337.54	265	634.486	8.635	43.5	6.14	11.536	842
	16	32	11.2	350.26	283	695.921	10.435	44.1	6.35	12.653	962
	16	36	11.2	382.98	301	756.414	12.235	44.5	6.53	13.752	1.062
	16	38	11.2	394.34	310	786.310	13.134	44.7	6.61	14.295	1.142
1,100 X 350	9	12	6.3	181.63	143	342.028	3.581	43.4	6.88	6.218	490
	9	16	6.3	208.91	164	420.403	4.439	44.9	7.41	7.643	653
	9	19	6.3	229.37	180	478.418	5.533	45.7	7.70	8.538	776
	9	22	7.0	250.02	196	535.783	6.727	46.3	7.94	9.741	896
	9	25	7.0	270.48	212	592.498	8.070	46.8	8.14	10.772	1.021



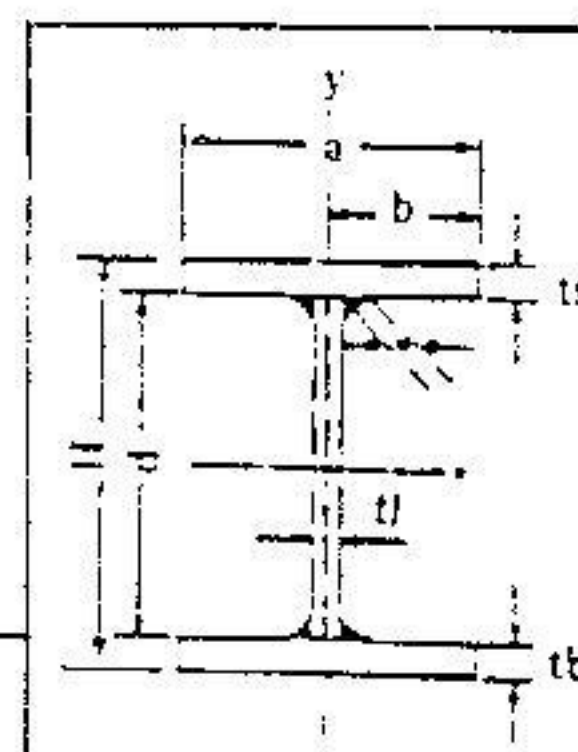
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1,100 X 350	12	16	8.4	241.57	190	450 858	11 448	43.3	6.90	8 187	654
	12	19	8.4	261.85	206	502 383	13 592	44.1	7.22	9 247	776
	12	22	8.4	282.13	221	565 222	16 736	44.8	7.48	10 276	898
	12	25	8.4	302.41	237	621 435	17 879	45.4	7.70	11 298	1 021
	12	28	8.4	322.69	253	677 017	20 023	45.8	7.89	12 309	1 144
	12	32	8.4	349.73	275	750 133	22 981	46.4	8.10	13 608	1 307
	16	25	11.2	345.50	271	660 026	17 900	43.8	7.22	10 000	1 022
	16	28	11.2	365.54	287	714 947	20 043	44.3	7.42	12 069	1 145
	16	32	11.2	392.26	309	787 198	22 901	44.9	7.65	14 312	1 308
	16	36	11.2	418.98	329	858 342	25 760	45.3	7.86	16 506	1 472
	16	38	11.2	432.34	339	893 501	27 189	45.5	7.95	16 245	1 553
1,100 X 400	9	12	6.3	193.63	152	377 542	12 806	44.2	8.14	5 954	640
	9	16	6.3	224.91	177	467 409	17 073	45.6	8.72	8 496	953
	9	19	6.3	248.37	195	533 931	20 273	46.4	9.04	9 707	1 012
	9	22	7.0	272.02	214	599 706	23 473	47.0	9.30	10 903	1 173
	9	25	7.0	295.48	232	664 737	26 672	47.5	9.51	12 086	1 335
	12	16	8.4	257.57	202	497 963	17 081	44.0	8.16	9 052	854
	12	19	8.4	280.85	220	563 875	20 281	44.9	8.51	10 252	1 014
	12	22	8.4	304.13	239	629 146	23 481	45.5	8.80	11 439	1 174
	12	25	8.4	327.41	257	693 678	26 681	46.1	9.04	12 612	1 334
	12	28	8.4	350.69	275	757 478	29 881	46.5	9.24	13 772	1 494
	12	32	8.4	381.73	300	841 411	34 148	47.0	9.47	15 298	1 707
	16	25	11.2	370.50	291	732 266	26 702	44.6	8.51	13 313	1 335
	16	28	11.2	393.54	309	795 408	29 902	45.0	8.74	14 461	1 495
	16	32	11.2	424.26	333	878 475	34 166	45.6	9.00	15 972	1 708
	16	36	11.2	454.98	357	960 269	38 435	46.0	9.21	17 459	1 921
	16	38	11.2	470.34	369	1 000 692	40 568	46.2	9.31	18 194	2 026
1,100 X 450	9	12	6.3	205.63	161	413 056	16 231	44.8	9.43	7 510	810
	9	16	6.3	240.91	189	514 414	24 306	46.2	10.0	9 352	1 030
	9	19	6.3	267.37	210	589 443	28 862	47.0	10.3	10 717	1 282
	9	22	7.0	294.02	231	663 630	33 418	47.5	10.6	12 066	1 485
	9	25	7.0	320.48	252	736 977	37 975	48.0	10.8	13 399	1 657
	12	16	8.4	273.57	215	544 569	24 315	44.7	9.45	9 906	1 090
	12	19	8.4	299.85	235	619 387	28 871	45.5	9.83	12 261	1 293
	12	22	8.4	326.13	256	693 069	33 427	46.1	10.1	12 501	1 485
	12	25	8.4	352.41	277	765 918	37 983	46.7	10.3	13 925	1 688
	12	28	8.4	378.69	297	837 929	42 540	47.1	10.5	15 235	1 890
	12	32	8.4	413.73	325	932 688	48 614	47.5	10.8	16 957	2 160
	16	25	11.2	395.50	310	804 505	39 004	45.2	9.83	14 522	1 689
	16	28	11.2	421.54	331	875 869	42 560	45.7	10.0	15 924	1 891
	16	32	11.2	456.26	358	969 752	48 635	46.2	10.3	17 631	2 161
	16	36	11.2	490.98	385	1 062 197	54 710	46.6	10.5	19 312	2 431
	16	38	11.2	508.34	399	1 107 983	57 747	46.7	10.6	20 143	2 565
1,150 X 200	9	12	6.3	150.13	118	262 483	1 606	41.9	3.27	4 554	160
	9	16	6.3	165.41	130	310 572	2 140	43.4	3.60	5 401	214
	9	19	6.3	176.87	139	346 190	2 540	44.3	3.78	6 020	254



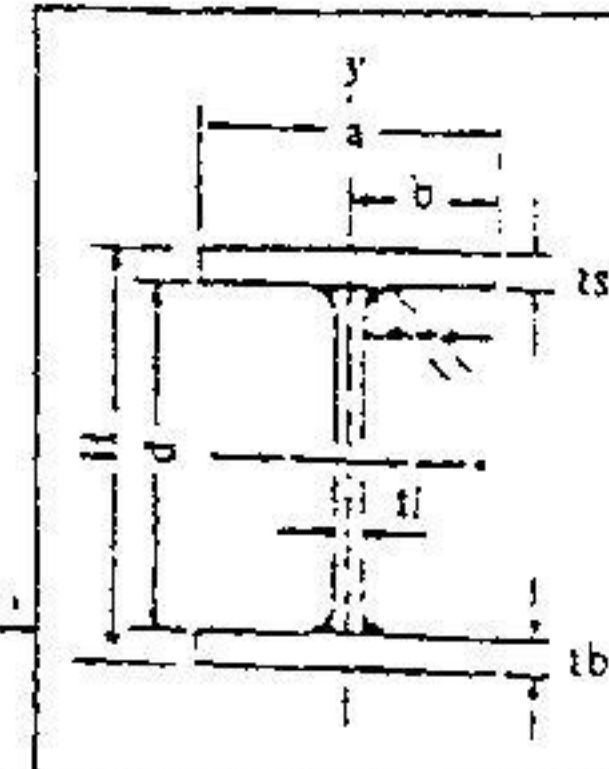
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			I _x	I _y	i _x	i _y	Z _x	Z _y
H x B	t _s	t _b	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1,150 X 200	9	22	7.0	188.52	148	381.427	2.940	45.0	3.95	6.633	294
	9	25	7.0	199.98	157	416.293	3.339	45.7	4.09	7.219	333
	12	16	8.4	199.57	157	346.506	2.149	41.7	3.29	6.038	214
	12	19	8.4	210.85	166	360.566	2.549	42.6	3.48	6.618	254
	12	22	8.4	222.13	174	415.249	2.949	43.3	3.65	7.221	294
	12	28	8.4	244.69	192	463.434	3.749	44.5	3.92	8.403	374
	12	32	8.4	269.73	204	528.167	4.262	45.2	4.06	9.186	428
	12	35	8.4	271.01	213	561.242	4.662	45.6	4.16	9.750	468
	16	25	11.2	278.50	219	493.924	3.370	42.2	3.49	8.639	337
	16	28	11.2	289.54	227	527.139	3.770	42.8	3.62	9.167	377
	16	32	11.2	304.26	239	570.361	4.303	43.4	3.77	9.929	430
	16	36	11.2	319.98	250	613.944	4.836	44.0	3.90	10.677	483
	16	38	11.2	326.34	256	635.247	5.103	44.2	3.96	11.047	510
1,150 X 250	9	12	6.3	162.13	127	301.335	3.131	43.2	4.40	5.240	250
	9	16	6.3	181.41	142	262.014	4.173	44.7	4.80	5.295	333
	9	19	6.3	195.87	154	406.966	4.954	45.6	5.03	7.077	396
	9	22	7.0	210.52	165	451.417	5.736	46.4	5.23	7.850	458
	9	25	7.0	224.98	177	495.397	6.517	47.0	5.39	8.615	521
	12	16	8.4	215.57	169	396.949	4.182	43.0	4.41	6.803	334
	12	19	8.4	229.85	180	441.332	4.963	43.9	4.65	7.675	397
	12	22	8.4	244.13	192	485.139	5.745	44.7	4.86	8.438	459
	12	25	8.4	258.41	203	529.672	6.526	45.3	5.02	9.194	522
	12	28	8.4	272.69	214	571.634	7.307	45.8	5.16	9.941	584
	12	32	8.4	291.73	229	623.165	8.048	46.5	5.36	10.925	667
	16	25	11.2	303.50	238	573.039	6.547	43.6	4.66	9.965	523
	16	28	11.2	317.64	249	615.279	7.328	44.1	4.82	10.700	586
1,150 X 300	9	12	6.3	174.13	137	340.168	5.406	44.2	5.58	5.916	360
	9	16	6.3	197.41	153	413.455	7.206	45.8	6.05	7.190	480
	9	19	6.3	214.87	169	467.722	8.556	46.7	6.32	8.134	570
	9	22	7.0	232.52	183	521.407	9.906	47.4	6.54	9.057	660
	9	25	7.0	249.98	196	574.512	11.256	48.0	6.72	9.991	750
	12	16	8.4	231.57	182	448.391	7.216	44.1	5.59	7.798	481
	12	19	8.4	248.85	195	502.098	8.556	45.0	5.88	8.732	571
	12	22	8.4	266.13	209	555.229	9.915	45.7	6.11	9.656	661
	12	25	8.4	283.41	222	607.787	11.265	46.4	6.31	10.570	751
	12	28	8.4	300.69	236	659.774	12.616	46.9	6.49	11.474	841
	12	32	8.4	323.73	254	728.209	14.415	47.5	6.68	12.664	961
	16	25	11.2	329.50	258	552.153	11.297	44.7	5.86	11.341	752
	16	28	11.2	345.64	271	703.419	12.637	45.2	6.06	12.233	842
	16	32	11.2	368.26	289	770.903	14.437	45.8	6.28	13.407	962
	16	36	11.2	390.98	307	837.401	16.236	46.4	6.48	14.562	1082
	16	38	11.2	402.34	316	870.282	17.136	46.6	6.54	15.135	1147



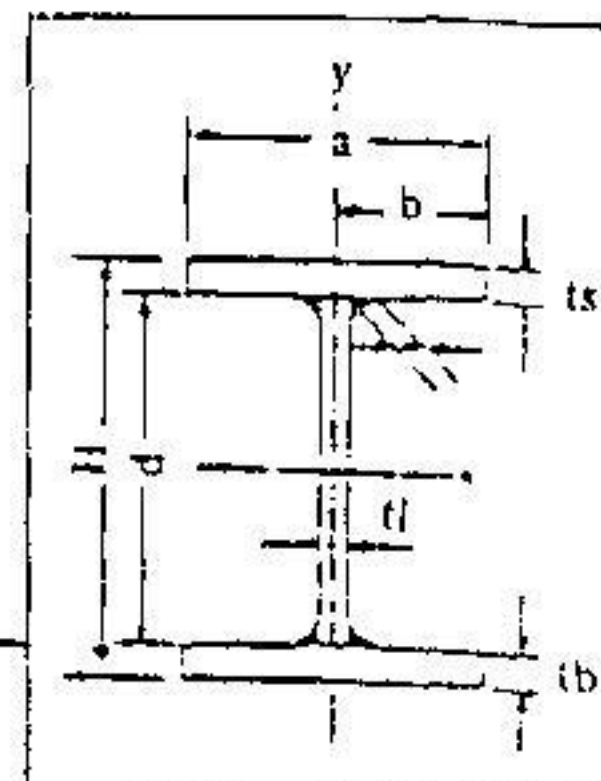
Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1,150 X 350	9	12	6.3	186.13	146	379.041	8.531	45.2	5.60	6.532	490
	9	16	6.3	212.41	168	464.297	11.440	46.7	7.33	8.085	650
	9	19	6.3	232.97	184	528.488	13.553	47.5	7.63	9.191	776
	9	22	7.0	254.52	200	591.397	15.727	48.2	7.87	10.285	898
	9	25	7.0	274.98	216	653.626	17.871	48.8	8.07	11.367	1.021
	12	16	8.4	247.57	194	489.832	11.449	45.0	6.21	8.692	654
	12	19	8.4	267.85	210	562.364	13.553	45.9	7.14	9.758	776
	12	22	8.4	288.13	226	625.219	15.736	46.6	7.40	10.673	898
	12	25	8.4	308.41	242	686.901	17.880	47.2	7.63	11.946	1.021
	12	28	8.4	328.69	258	747.915	20.024	47.7	7.82	13.007	1.144
	12	32	8.4	355.73	279	826.220	22.562	48.3	8.03	14.404	1.307
	16	25	11.2	353.50	277	731.263	17.302	45.6	7.14	12.717	1.027
	16	28	11.2	373.54	293	791.559	20.045	46.1	7.34	13.766	1.145
	16	32	11.2	400.26	314	870.924	22.903	46.7	7.56	15.146	1.308
	16	36	11.2	426.98	335	949.129	25.761	47.2	7.79	16.506	1.472
	16	38	11.2	440.34	346	987.799	27.190	47.4	7.87	17.179	1.553
1,150 X 400	9	12	6.3	192.13	156	417.894	12.506	46.0	8.05	7.267	640
	9	16	6.3	229.41	180	516.339	17.073	47.5	8.64	8.979	853
	9	19	6.3	252.87	199	589.354	20.273	48.3	9.96	10.047	1.012
	9	22	7.0	276.52	217	661.387	23.473	48.9	9.22	11.502	1.173
	9	25	7.0	299.98	235	732.741	26.673	49.5	9.44	12.743	1.333
	12	16	8.4	263.57	207	551.274	17.082	45.8	8.07	9.537	854
	12	19	8.4	286.85	225	623.630	20.282	46.7	8.42	10.845	1.014
	12	22	8.4	310.13	243	695.209	23.482	47.4	8.72	12.090	1.174
	12	25	8.4	333.41	262	766.016	26.682	48.0	8.96	13.322	1.334
	12	28	8.4	356.69	280	836.055	29.882	48.5	9.17	14.540	1.494
	12	32	8.4	387.73	304	926.252	34.148	49.0	9.40	16.143	1.707
	16	25	11.2	378.50	297	810.382	26.704	46.4	8.42	14.093	1.325
	16	28	11.2	401.54	315	879.699	29.902	46.9	8.65	15.239	1.485
	16	32	11.2	432.26	339	970.946	34.170	47.5	8.91	16.886	1.709
	16	36	11.2	462.98	363	1.060.358	38.436	47.9	9.13	18.449	1.921
	16	38	11.2	478.34	375	1.105.316	40.559	48.1	9.23	19.222	2.028
1,150 X 450	9	12	6.3	210.13	165	456.746	18.221	46.7	9.33	7.943	810
	9	16	6.3	245.41	193	567.780	24.105	48.1	9.96	9.874	1.030
	9	19	6.3	271.87	213	650.019	28.862	48.9	10.3	11.304	1.282
	9	22	7.0	298.52	234	731.377	33.419	49.5	10.5	12.719	1.485
	9	25	7.0	324.98	255	811.955	37.975	50.0	10.7	14.119	1.687
	12	16	8.4	279.57	219	602.716	24.316	46.5	9.34	10.482	1.080
	12	19	8.4	305.85	240	684.293	28.872	47.4	9.73	11.902	1.283
	12	22	8.4	332.13	261	765.199	33.478	48.1	10.0	13.307	1.485
	12	25	8.4	358.41	281	845.120	37.984	48.6	10.3	14.697	1.688
	12	28	8.4	384.69	302	924.155	42.540	49.1	10.5	16.072	1.890
	12	32	8.4	419.73	329	1.029.273	48.615	49.5	10.7	17.883	2.160
	16	25	11.2	403.50	317	889.497	38.006	47.0	9.73	15.469	1.689
	16	28	11.2	429.54	337	967.839	42.562	47.6	9.96	16.831	1.891
	16	32	11.2	464.26	364	1.070.967	48.537	48.1	10.2	18.525	2.161
	16	36	11.2	498.98	392	1.172.556	54.711	48.5	10.4	20.292	2.431
	16	38	11.2	516.34	405	1.222.934	57.749	48.7	10.5	21.255	2.556



Ukuran Profil - H. mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1.200 X 300	16	25	11.2	336.50	264	720.585	11.289	43.4	6.81	12.009	752
	16	28	11.2	353.54	273	775.640	12.333	47.3	8.00	12.914	842
	16	32	11.2	376.26	295	850.458	14.408	47.6	8.21	14.174	962
	16	36	11.2	398.98	313	923.243	16.208	48.2	8.39	15.037	1082
	16	38	11.2	410.34	322	959.251	17.125	48.4	8.48	15.537	1142
1.200 X 350	9	12	6.3	190.63	150	418.370	8.580	46.9	6.72	8.972	490
	9	16	6.3	217.91	171	512.049	11.440	48.5	7.25	11.554	653
	9	19	6.3	233.57	187	581.471	13.634	49.4	7.68	13.591	776
	9	22	7.0	259.02	203	650.180	16.727	50.1	7.90	15.828	898
	9	25	7.0	279.48	219	718.179	17.871	50.7	8.00	17.969	1021
	12	16	8.4	253.57	199	551.384	11.470	46.7	6.70	9.198	654
	12	19	8.4	273.85	215	620.695	13.593	47.7	7.06	10.344	776
	12	22	8.4	294.13	231	688.800	16.737	48.5	7.33	11.480	899
	12	25	8.4	314.41	247	756.201	17.881	49.1	7.55	12.600	1021
	12	28	8.4	334.69	263	822.902	20.024	49.6	7.75	13.715	1144
	12	32	8.4	361.73	284	910.756	22.882	50.2	7.95	15.179	1307
	16	25	11.2	361.50	284	806.897	17.902	47.4	7.06	13.448	1023
	16	28	11.2	381.54	300	872.910	20.047	47.9	7.27	14.546	1145
	16	32	11.2	408.26	320	959.623	22.905	48.6	7.51	15.993	1208
	16	36	11.2	434.98	341	1045.223	25.753	49.1	7.71	17.420	1372
	16	38	11.2	446.34	352	1087.570	27.192	49.3	7.80	18.125	1553
1.200 X 400	9	12	6.3	202.53	159	460.712	12.307	47.7	7.05	7.578	640
	9	16	6.3	223.21	184	568.127	17.073	49.3	8.55	9.458	853
	9	19	6.3	257.37	202	647.728	20.273	50.2	8.88	10.795	1013
	9	22	7.0	281.02	221	726.512	23.473	50.9	9.15	12.108	1173
	9	25	7.0	304.48	239	804.481	26.673	51.4	9.37	13.408	1333
	12	16	8.4	269.57	212	607.962	17.083	47.6	7.98	10.132	854
	12	19	8.4	292.85	220	686.952	20.283	48.5	8.34	11.449	1014
	12	22	8.4	316.13	248	765.132	23.483	49.3	8.63	12.752	1174
	12	25	8.4	339.41	266	842.503	26.683	49.9	8.88	14.041	1334
	12	28	8.4	362.69	285	919.072	29.883	50.4	9.09	15.317	1494
	12	32	8.4	393.73	309	1019.922	34.149	50.9	9.32	16.998	1707
	16	25	11.2	386.50	303	893.199	26.705	48.2	8.33	14.886	1335
	16	28	11.2	409.54	321	968.979	29.905	48.7	8.57	16.149	1495
	16	32	11.2	440.26	346	1069.768	34.172	49.4	8.83	17.913	1708
	16	36	11.2	470.98	370	1167.202	38.433	49.9	9.05	19.453	1921
	16	38	11.2	486.34	382	1215.389	40.571	50.1	9.15	20.264	2028
1.200 X 450	9	12	6.3	214.63	168	503.054	18.232	48.4	9.23	8.384	810
	9	16	6.3	249.91	196	624.204	24.207	50.0	9.87	10.403	1080
	9	19	6.3	276.37	217	713.984	28.363	50.8	10.2	11.859	1292
	9	22	7.0	303.02	238	802.943	33.419	51.5	10.4	13.380	1485
	9	25	7.0	329.48	259	890.783	37.975	52.0	10.7	14.846	1687
	12	16	8.4	285.57	224	664.040	24.316	48.2	9.25	11.067	1080
	12	19	8.4	311.85	245	753.209	28.972	49.2	9.64	12.553	1283
	12	22	8.4	338.13	265	841.463	33.420	49.9	9.96	14.024	1485



Ukuran Profil - H, mm				luas penampang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			Ix	Iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1,200 X 200	9	12	6.3	154.63	121	291.345	1.607	43.5	3.23	4.655	160
	9	16	6.3	169.91	133	343.816	2.140	45.0	3.55	5.730	214
	9	19	6.3	181.37	142	392.700	2.540	46.0	3.74	6.376	254
	9	22	7.0	193.02	152	421.186	2.940	46.6	3.91	7.019	294
	9	25	7.0	204.48	161	459.273	3.340	47.5	4.05	7.554	334
	12	16	8.4	205.57	161	383.651	2.150	43.3	3.24	6.394	215
	12	19	8.4	216.85	170	421.925	2.550	44.2	3.43	7.032	255
	12	22	8.4	229.13	179	459.806	2.946	45.0	3.60	7.663	294
	12	25	8.4	239.41	188	497.295	3.349	45.7	3.75	8.288	334
	12	28	8.4	250.69	197	534.395	3.749	46.2	3.87	8.906	374
	12	32	8.4	265.73	209	583.261	4.282	46.9	4.02	9.721	428
	16	25	11.2	286.50	225	547.991	3.372	43.9	3.44	9.133	337
	16	28	11.2	297.54	234	584.302	3.772	44.4	3.57	9.736	377
	16	32	11.2	312.26	245	632.127	4.305	45.1	3.72	10.536	432
	16	36	11.2	325.98	257	679.284	4.838	45.7	3.86	11.321	483
	16	38	11.2	334.34	262	702.613	5.104	46.0	3.94	11.710	510
1,200 X 250	9	12	6.3	166.63	131	333.687	2.132	44.8	4.34	5.551	250
	9	16	6.3	185.91	146	399.894	4.173	46.4	4.74	6.664	303
	9	19	6.3	200.37	157	448.957	4.954	47.4	4.98	7.482	356
	9	22	7.0	215.02	169	495.517	5.736	48.2	5.17	8.291	408
	9	25	7.0	229.48	180	545.575	6.517	48.8	5.34	9.092	461
	12	16	8.4	221.57	174	439.729	4.183	44.6	4.35	7.328	234
	12	19	8.4	235.85	185	488.182	4.964	45.6	4.60	8.136	287
	12	22	8.4	250.13	196	536.137	5.745	46.4	4.80	8.936	336
	12	25	8.4	264.41	208	583.597	6.526	47.1	4.98	9.721	387
	12	28	8.4	279.69	219	630.555	7.308	47.6	5.13	10.506	434
	12	32	8.4	297.73	234	692.426	8.349	48.3	5.30	11.540	487
	16	25	11.2	311.50	245	634.293	6.549	45.3	4.60	10.571	413
	16	28	11.2	325.54	256	680.471	7.330	45.8	4.76	11.341	466
	16	32	11.2	344.26	270	741.293	8.372	46.6	4.94	12.354	519
	16	36	11.2	362.98	285	801.264	9.413	47.1	5.10	13.364	572
	16	38	11.2	372.34	292	830.932	9.934	47.3	5.18	13.848	594
1,200 X 300	9	12	6.3	178.63	140	376.028	5.407	45.9	5.51	6.267	360
	9	16	6.3	201.91	153	455.971	7.207	47.6	5.98	7.589	420
	9	19	6.3	219.37	172	515.214	8.557	48.5	6.25	8.586	480
	9	22	7.0	237.02	186	573.849	9.907	49.3	6.47	9.564	540
	9	25	7.0	254.48	200	631.877	11.256	49.9	6.66	10.531	600
	12	16	8.4	237.57	186	495.807	7.216	45.6	5.52	8.263	481
	12	19	8.4	254.85	200	554.439	8.566	46.7	5.81	9.240	541
	12	22	8.4	272.13	214	612.469	9.916	47.5	6.05	10.207	601
	12	25	8.4	289.41	227	669.899	11.266	48.2	6.25	11.164	661
	12	28	8.4	306.69	241	726.734	12.616	48.7	6.42	12.112	721
	12	32	8.4	329.73	259	801.591	14.416	49.4	6.62	13.259	781



Ukuran Profil - H, mm				luas penam- pang (cm ²)	berat per meter (kg/m)	Momen Inersia		Jari-jari Gerasi		Modulus Penampang	
tinggi x lebar	t-badan	t-sayap	LL			ix	iy	ix	iy	Zx	Zy
H x B	ts	tb	S			(cm ⁴)	(cm ⁴)	(cm)	(cm)	(cm ³)	(cm ³)
1,200 x 450	12	25	8.4	364.41	286	928.805	37.985	50.5	10.2	15.480	1.538
	12	28	8.4	390.69	307	1.015.241	42.541	51.0	10.4	16.920	1.890
	12	32	8.4	425.73	334	1.129.087	48.616	51.5	10.6	18.616	2.160
	16	25	11.2	411.50	323	979.501	38.007	48.9	9.53	16.325	1.689
	16	28	11.2	437.54	343	1.065.148	42.564	49.4	9.83	17.752	1.891
	16	32	11.2	472.26	371	1.177.954	48.638	50.0	10.1	19.632	2.161
	16	35	11.2	506.98	398	1.289.182	54.713	50.5	10.3	21.486	2.431
	16	38	11.2	524.34	412	1.344.207	57.750	50.7	10.4	22.403	2.566











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